

COUNTWAY LIBRARY



HC 313J T



BOSTON
MEDICAL LIBRARY
& THE FENWAY

ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF

The Illinois State Medical Society

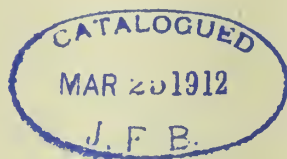
PUBLISHED AT SPRINGFIELD, ILL.

GEORGE N. KREIDER, M. D., Editor



INDEX FOR VOLUME XVI.

JULY TO DECEMBER, 1909



INDEX TO VOLUME XVI

ORIGINAL ARTICLES.

	PAGE		PAGE
A Brief Report of Cases of Early Pulmonary Tuberculosis Treated by Different Tuberculins. E. H. Butterfield, M.D., Ottawa	267	Diagnosis of Gastric Ulcer with Differential Diagnosis. Christopher Graham, M.D., Rochester, Minn. .	137
Acidemia in its Relation to Nervous Diseases. George F. Butlér, M.D., Chicago	347	Diagnosis of Bone Lesions by Means of the Roentgen Rays. M. Reichmann, M.D., Chicago	118
A General Consideration of the Needs of Crippled Children, Their Treatment and the Results to be Expected. John Ridlon, M.D., Chicago	409	Diagnosis of Fractures. William Fuller, Chicago.....	648
A Preliminary Report on the Advisability of Thyroidectomy in Catatonic Dementia Præcox. Albert B. Kanavel, M.D., Chicago, in association with Louis J. Pollock and Arthur B. Eustace, M.D.	253	Diagnostic Aids in Diseases of the Lungs and Pleura. Emil G. Beck, M.D., Chicago	363
A Study of Contemporary Workmen's Compensation. W. H. Allport, M.D., Chicago. First paper..	418	Discussion on Abuse of Medical Charities and Its Correction....	339
Second paper	566	Discussion on Paper of Dr. Billings. .	639
Third paper	704	Discussion on Papers of Drs. Butterfield and Tice.....	292
A Unique Foreign Body in the Male Bladder and the Removal by Suprapubic Cystotomy. H. O. White, M.D., and R. Robinson Duff, M.D., Chicago	543	Discussion on Paper of Dr. Churchill	298
Bone Lesions, Diagnosis of by Means of Roentgen Rays.....	118	Discussion on Paper of Dr. Horrell.	559
Brain Surgery. Carl W. Wagner, M.D., Chicago	33	Discussion on Paper of Dr. Lillie... .	266
Comparative Results in the Treatment of Gonorrhea in Young Girls. Ruth Vail, S.B., M.D., and Mary C. Lincoln, Ph.B., M.D., Chicago..	191	Discussion on Paper of Dr. Stremmel	397
Congenital Cystic Kidney. Report of a Clinical Case. John B. Haeblerlin, M.D., Chicago	456	Discussion on Paper of Dr. Walls..	407
Crippled Children, Needs of, Their Treatment, etc.	409	Discussion on Paper of Dr. Woodyatt	671
Cutaneous Reactions of Tuberculin. Frederick Tice, M.D., Chicago....	274	Discussion on Joint Papers of Drs. Bevan and Kretschmer; also on the papers of Drs. Kolischer and Schmidt	536
Dementia Præcox, Catatonic, Advisability of Thyroidectomy in.....	253	Discussion on Papers of Drs. Collins and Green	383
		Discussion on Papers of Drs. Patrick, Hecht, Kanavel and Black..	258
		Discussion on Papers of Drs. Ryan, Lockwood and Fuller	517
		Discussion on the Papers of Drs. Elliott, Crofton and Williamson....	512
		Discussion on the Physiology of the Cochlea	596
		Discussion on Symposium on Gastric and Duodenal Ulcer.....	155
		Early Immunization, The Essential Function of the Tonsil. R. H. Good, M.D., Chicago	186
		Extraocular Syphilis. Casey Wood, Chicago	747

	PAGE		PAGE
Foreign Bodies in the Intestines. H. Scott, M.B., C.M., Ed.....	46	Puerperal Infection. G. J. Hagens, Chicago	735
Fracture of Pelvis and Rupture of Bladder. E. K. Lockwood, M.D., Virden	516	Pulmonary Tuberculosis. Cases of Treated by Different Tuberculins. 267	
Eye Diseases Associated with Nasal and Nasopharyngeal Disorders. Thomas Faith, Chicago.....	691	Pyloric Stenosis in Infancy. F. X. Walls, M.D., Chicago	402
Gallstone Disease. John B. Deaver, M.D., LL.D., Philadelphia, Pa....	1	Race Breeding. Julius Grinker, M.D., Chicago	302
Gastric ulcer, diagnosis and differential diagnosis	137	Rare Case of Pemphigus Requiring Surgical Attention. Stephen C. Glidden, M.D., Danville	657
Gonorrhea in Young Girls, Comparative Results in the Treatment of. 191		Remarks on the X-Rays, with Demonstration of New Method of Taking X-Ray Pictures. P. S. O'Donnell, M.D., Chicago	105
Immunity. A Review of Our Knowledge Concerning Opsonins, Aggressins, Anaphylaxis, Phagocytosis and Immunity. William C. Bouton, M.D., Waukegan, Ill.....	311	Report of a Case of Brain Tumor, with Specimens of Brain and Tumor. C. B. Horrell, M.D., Galesburg	555
Immunity. A Review of Our Knowledge Concerning Toxins, Antitoxins, Agglutinins, Precipitins, Cytolysins and Bacteriolysins. William C. Bouton, M.D., Waukegan, Ill.....	169	Report of a Case of Hodgkin's Disease. E. H. Weld and P. L. Markley, Rockford	662
Interpretation of the Radiograms of the Nose and Its Accessory Sinuses. Joseph C. Beck, Chicago.....	739	Responsibility of the State in the Care of Its Dependents. Frank Billings, Chicago	635
Intraocular Syphilis. William H. Wilder, Chicago	748	Rhythmical Inflation of the Lungs in Resuscitation. John A. Capps, M.D., and Dean D. Lewis, M.D., Chicago	416
Kidney. Congenital, Cystic; Report of Clinical Case	456	Roentgen Rays, Diagnosis of Bone Lesions by Means of.....	118
Local Anesthesia. Edson B. Fowler, M.D., Chicago	466	Rupture of the Uterus During Labor; Operation; Recovery. Edward L. Moorhead, A.M., M.D., Chicago	30
Lungs, Diagnostic Aids in Diseases of the.....	363	Sheet of Directions Given the Patient After a Tonsil Operation, Including the Treatment of Post-operative Hemorrhage. Edwin Pyncheon, M.D., Chicago.....	179
Male Bladder, Foreign Body in the, etc.	543	Skin Grafting. G. H. Galbraith, M.D., Clifford	664
Medical Charity from the Point of View of the Patient. Alice Hamilton, M.D., Chicago.....	333	Some Sidelights on Cholecystitis. Bayard Holmes, M.D., Chicago... 479	
Muscular Power in Tenotomy and Tenoplasty. A. Steindler, M.D., Chicago	167	Some Surgical Diseases of the Stomach and Duodenum and Operative Treatment. J. A. Day, M.D., Jacksonville	18
Nervous Diseases, Acidemia in Its Relation to	347	Subserous Appendectomy. E. M. Sala, M.D., Rock Island, Ill	388
Nitrous Oxide and Oxygen in General Surgery. F. K. Ream, M.D., D.D.S., Chicago	462	Surgery of the Brain and Its Coverings. Cassius C. Rogers, M.D., Chicago	431
Notes on the Treatment of Acute Insanity. Sanger Brown, M.D., Chicago	399	Surgical Treatment of Appendicitis; The Pus Appendix. Discussion.. 554	
Pleura, Diagnostic Aids in Diseases of the	363	Surgical Treatment of Exophthalmic Goiter. Carl E. Black, M.D., Jacksonville	547
Poisoning from Bismuth Subnitrate Vaseline Paste. V. C. David, M.D., and J. R. Kauffman, M.D., Chicago 370			
Prepared Foods and Diabetic Articles. R. T. Woodyatt, Chicago....	660		

PAGE	PAGE
Surgical Treatment of Non-Perforative Gastric Ulcers. A. J. Ochsner, M.D., Chicago 143	The Pathology and Diagnosis of Dilatation of the Renal Pelvis. Lewis Wine Bremerman, M.D., Chicago 539
Surgical Treatment of Perforating Gastric and Duodenal Ulcer, with Report of a Case of Perforating Gastric Ulcer; Recovery. J. E. Allaben, M.D., Rockford..... 146	The Problem of the Blind from the Doctor's Standpoint. J. T. McAnally, Carbondale 643
Suppuration of the Attic of the Middle Ear With an Unusual Form of Hernia of the Drumhead and Transient Labyrinthine Involvement. H. Gradle, M.D., Chicago 605	The Prognosis of Valvular Heart Lesions. Ellis K. Kerr, M.D., Chicago 160
Symposium on Anesthetics. Drs. Meek, Ream, Fowler... 459, 462, 466	The Pus Appendix. G. W. Green, M.D., Chicago 380
Symposium on Gastric and Duodenal Ulcer 155	The Question of the Education of Children Affected with Ringworm and Favus of the Scalp. James Nevins Hyde, M.D., Chicago 427
Technic of Radiography. Francis Turley, Chicago 744	The Serum Treatment of Epidemic Cerebrospinal Meningitis. Frank Spooner Churchill, M.D., Chicago. 294
The Action of Coal-Tar Anodynes. Bernard Fantus, M.D., Chicago... 561	The Surgical Treatment of Appendicitis. Clifford U. Collins, M.D., Peoria 375
The Clinical Significance of Albumin and Casts in the Urine. Arthur R. Elliott, M.D., Chicago 499	The Telephone Theory. John Gordon Wilson, M.D., Chicago 608
The Conduct of Normal Labor. C. M. Cheadle, M.D., Ashton..... 483	The Use of Chloroform. Joseph A. Meek, M.D., Chicago 459
The Diagnosis and Treatment of Stone in the Ureter. Arthur Dean Bevan, M.D., and Herman L. Kretschmer, M.D., Chicago..... 520	Treatment of Syphilis. W. L. Baum, M.D., Chicago 749
The Diagnosis of Graves' Disease. Hugh T. Patrick, M.D., Chicago.. 243	Tuberculin, Cutaneous Reaction of. 274
The Diagnosis of Syphilitic Eye Lesions by Means of the Spirochæta Pallida and the Serum Reaction of Wassermann. B. C. Corbus, M.D., Chicago..... 196, 747	Tuberculosis in Infants and Children. C. W. Lillie, M.D., East St. Louis 261
The Doctor in Civic Life. John A. Witherspoon, M.D., Nashville, Tenn. 12	Typhoid Fever from a Municipal Standpoint. Heman Spalding, M.D., Chicago 308
The Ethics of Medical Charities in the Present Movement. E. A. Fischkin, M.D., Chicago 336	Ulcer of the Stomach. Differentiation from Cancer and Treatment. Frank M. Mason, M.D., Rossville. 674
The Eye in Relation to General Diseases. W. E. Gamble, M.D., Chicago 688	Vaccine Treatment of Iritis. Don. A. Vanderhoof, M.D., Rockford, Ill. 686
The Tonsil Question. Richard H. Brown, M.D., Chicago..... 698	Value and Limitation of Salt-Free Diet and Restriction of Fluid in Nephritis. Charles Spencer Williamson, M.D., Chicago..... 506
The Man Who Would be Secretary (or should be), John B. Donaldson, M.D., Canonsburg, Pa. 75	Vesical Symptoms Due to Diseases External to the Bladder. Louis E. Schmidt, M.D., Chicago..... 526
The Medical Treatment of Exophthalmic Goiter. D'Orsay Hecht, M.D., Chicago 248	When Shall We Advise Operation for the Fibromata and Myomata of the Uterus. D. C. Stremmel, M.D., Macomb 394
The Nature and Causes of Nasal Mucous Polypi. Edward F. Garaghan, M.D., Chicago 694	Why a Peripheral Tone Analysis Is Necessary to Explain the Phenomena of Tone Perception. G. E. Shambaugh, M.D., Chicago..... 611
The Nature of the Cardiovascular Changes in Nephritis. Alfred C. Croftan, M.D., Chicago 504	Workmen's Compensation. A Study of Contemporary 418, 566. 704

EDITORIALS.

	PAGE		PAGE
Another Penitent	325	New Charities Administration Law	87
Beware of Swindler.....	586	Osteopathic Bills Defeated.....	90
Compensation for Industrial In-		Our London Correspondence.....	585
juries	720	Pellagra	440
Consolidation of Medical Colleges..	206	Professor (?) Braun Indicted.....	442
Desperate Straits of the Proprietary		Proprietary Medicine Propaganda.	719
Medicine Trust	323	Pure Foods	443
Dr. Atkinson Not Destitute.....	208	The Atlantic City Meeting.....	205
Dr. N. S. Davis, An Original Prohi-		The Carroll Fund	207
bitionist	723	The College of Physicians of Phila-	
Illinois and "Rotten" Medical Edu-		delphia	724
cation	723	The Coming United States Census	327
Illinois Medical College Under New		The Diseases and Deaths of Chris-	
Affiliation	625	tian Scientists	326
Illinois Medical Directory.....	723	The Legislative Record of Votes on	
Ladies' Auxiliary to County Med-		the Passage of the Osteopath	
ical Societies	587	Bill	204
Legislation Concerning Opticians..	586	The New Board of Administration.	203
Lecture Bureau of the State So-		The Quincy Meeting.....	86
cietly	587	The Relations of the Urinary Acid-	
Measles More Dangerous than		ity	443
Diphtheria or Scarlet Fever.....	50	Vacation Trips to Europe.....	207

MISCELLANEOUS.

	PAGE		PAGE
Bookkeeping of the County Secre-		Official Minutes of the Fifty-ninth	
tary, A. J. Roberts, M.D., Ot-		Annual Session Illinois State Med-	
tawa	83	ical Society	50
County Secretaries' Page—Conven-		President Dr. J. W. Pettit's Report	
tion Echoes	209	of the Year's Work.....	58
Lecture Bureau Illinois State Med-		Quarterly Session of the Council..	582
ical Society	584	Suggestions from the State Secre-	
Loss of Purse at Quincy Meeting..	95	tary, E. W. Weis, M.D., Ottawa,	
Notice. Lecture Bureau Illinois		Ill.	79
State Medical Society.....	584		

CORRESPONDENCE.

	PAGE		PAGE
Appeal to the Medical Profession of		Necessity for Organization. Commit-	
the West and South.....	446	tee Report	726
A Recent Visit to the Surgical Clin-		Osteopathic Bill Defeated—Those	
ics of English Hospitals.....	328	Who Voted.....	91
A Word of Praise.....	446	Present Status of Obstetrical Teach-	
A Working Knowledge of Simple		ing in Europe and America.....	592
Refraction	725	Remember the National Magazine.	592
Army Medical Corps Examinations.	726	Shall the Old Offenders be Admit-	
Beware the Book Thief.....	592	ted? No	729
London Letter.....	588	That Osteopathic Bill.....	210
Medical Features of Conference of		The Septic Talks of Champaign and	
Charities' Program.....	447	Lake Forest	327

NEWS OF THE ESTATE.

	PAGE		PAGE
Book Notices		New Incorporations.....	359, 632
..134, 135, 239, 240, 241, 497, 498, 766		Medical Society Notes....	133, 235, 359
Change of Location.....		News Items.....	128, 232, 354, 492, 627, 758
.....133, 236, 360, 494, 632, 763		Personal.....	128, 232, 353, 490, 626, 757
Deaths.....	134, 237, 360, 495, 634, 764	Public Health.....	131, 234, 357, 493, 630, 761
Marriages.....	133, 236, 360, 495, 634, 764		

CITY, COUNTY AND DISTRICT SOCIETIES.

	PAGE		PAGE
Adams County.....	96, 211, 593	La Salle County	753
Alexander County.....	96	Crawford County.....	469
Brainerd District Medical Society..	97	Fulton County.....	120, 229, 623
Central Illinois District Medical So-		Fox River Valley Medical Associa-	
cietv	730	tion	346
Clark County	97	Jackson County.....	121, 469
Clinton County	98	Lake County.....	230
Coles County	211, 730	Macon County.....	624
Cook County—		Madison county.....	121, 470
Chicago Medical Society.....		Mercer County	753
.....99, 211, 213, 220, 333, 448, 730		Morgan County	230, 471, 753
South Side Branch.....	225	McLean County.....	122, 476
Chicago Medical and Chicago Sur-		North Central Illinois Medical As-	
gical Societies, Joint Meeting,		sociation	471
May 5	217	Ogle County.....	124, 490, 755
Chicago Surgical Society.....	226, 228	Pike County.....	125
Chicago Dermatological Society.....	451	Pulaski County.....	125
Chicago Laryngological and Oto-		Randolph County.....	126, 625
logical Society	594, 739	Stephenson County	755
Chicago Ophthalmological Society.		Tazewell Copnty.....	231, 756
.....	616, 714	Vermilion County.....	126, 755
Englewood Branch.....	456	Wabash County	127, 756
Southern District Medical Society	104	Whiteside County	756
De Witt County	753	Woodford County	756

AUTHORS.

Allaben, J. E. Surgical Treatment of Perforating Gastric and Duo- denal Ulcer with Report of Case —Recovery	146	Black, Carl E. Surgical Treatment of Exophthalmic Goiter.....	547
Allport, W. H. A Study of Cen- temporary Workmen's Compensa- tion	418, 566, 704	Bonton, Wm. C. Immunity. A Re- view of Our Knowledge Concern- ing Toxins, Antitoxins, Agglutin- ins, Precipitins, Cytolysins and Bacteriolysins	169, 311
Baum, W. L., Treatment of Syph- ilis	749	Bremerman, Lewis W. The Path- ology and Diagnosis of Dilatation of the Renal Pelvis.....	539
Beck, Emil G. Diagnostic Aids in Diseases of the Lung and Pleura.	363	Brown, Richard H., The Tonsil Ques- tion	698
Beck, Joseph C., Interpretation of the Radiograms of the Nose and Its Accessory Sinuses	739	Brown, Sanger. Notes on the Treatment of Acute Insanity...	399
Bevan, Arthur Dean. The Diagnosis and Treatment of Stone in the Ureter	520	Butler, Geo. F. Acidemia in Its Relation to Nervous Diseases....	347
Billings, Frank. Responsibility of the State in the Care of Its De- pendents	635	Butterfield, E. H. A Brief Report of Cases of Early Pulmonary Tuberculosis Treated by Differ- ent Tuberculins	267

	PAGE		PAGE
Capps, John A. Rhythmical Inflation of the Lungs in Resuscitation	416	Good, R. H. Early Immunization, the Essential Function of the Tonsil	186
Cheadle, C. M. The Conduct of Normal Labor.....	483	Gradle, H. Suppuration of the Attic of the Middle Ear with an Unusual Form of Hernia of the Drumhead and Transient Labyrinthine Involvement	605
Churchill, Frank S. The Serum Treatment of Epidemic Cerebrospinal Meningitis.....	294	Graham, Christopher. Diagnosis of Gastric Ulcer with Differential Diagnosis	137
Collins, Clifford U. The Surgical Treatment of Appendicitis.....	375	Green, G. W. The Pus Appendix..	380
Corbus, B. C. The Diagnosis of Syphilitic Eye Lesions by Means of the Spirochæta Pallida and the Serum Reaction of Wassermann.	196, 747	Grinker, Julius. Race Breeding....	302
Croftan, Alfred C. The Nature of the Cardiovascular Changes in Nephritis	504	Haeberlin, Jno. B. Congenital Cystic Kidney. Report of a Clinical Case	456
David, V. C. Poisoning from Bismuth Subnitrate Vaseline Paste..	370	Hagens, G. J., Puerperal Infection.	735
Day, J. A. Some Surgical Diseases of the Stomach and Duodenum and Operative Treatment.....	18	Hamilton, Alice. Medical Charity from the Point of View of the Patient	333
Deaver, John B. Gallstone Disease	1	Hecht, D'Orsay. The Medical Treatment of Exophthalmic Goiter....	248
Donaldson, John B. The Man Who Would Be Secretary (or should be)	75	Holmes, Bayard. Some Sidelights on Cholecystitis	479
Duff, Robinson R. and H. O. White. A Unique Foreign Body in the Male Bladder and the Removal by Suprapubic Cystotomy.....	543	Horrell, C. B. Report of a Case of Brain Tumor, with Specimens of Brain and Tumor.....	555
Elliott, Arthur R. The Clinical Significance of Albumin and Casts in the Urine	499	Hyde, James Nevins. The Question of the Education of Children Affected with Ringworm and Favus of the Scalp.....	427
Eustace, Arthur B. A Preliminary Report on the Advisability of Thyroidectomy in Catatonic Dementia Præcox	253	Kanavel, Albert G., with L. J. Pollock and Arthur B. Eustace. A Preliminary Report on the Advisability of Thyroidectomy in Catatonic Dementia Præcox.....	253
Faith, Thomas, Eye Diseases Associated with Nasal and Nasopharyngeal Disorders	691	Kauffman, J. R. and V. C. David. Poisoning from Bismuth Subnitrate Vaseline Paste.....	370
Fantus, Bernard. The Action of Coal-Tar Anodynes	561	Kerr, Ellis K. The Prognosis of Valvular Heart Lesions.....	160
Fischkin, E. A. The Ethics of Medical Charities in the Present Movement	336	Kretschmer, Herman L. and A. D. Bevan. The Diagnosis and Treatment of Stone in the Ureter....	520
Fowler, Edson B. Local Anesthesia	466	Lewis, Dean D. and J. A. Capps. Rhythmical Inflation of the Lungs in Resuscitation	416
Fuller, William, Diagnosis of Fractures	648	Lillie, C. W. Tuberculosis in Infants and Children	261
Galbraith, G. H., Skin Grafting....	664	Lincoln, Mary C. and Ruth Vail. Comparative Results in the Treatment of Gonorrhea in Young Girls	191
Gamble, W. E., The Eye in Relation to General Diseases	688	Lockwood, E. K. Fracture of Pelvis and Rupture of Bladder.....	516
Garraghan, Edward F., The Nature and Causes of Nasal Mucous Polypi	694	McAnally, J. T., The Problem of the Blind from the Doctor's Standpoint	643
Glidden, Stephen C., Rare Case of Pemphigus Requiring Surgical Attention	657	Markley, P. L., see Weld, E. H.	

	PAGE
Mason, Frank M. Uleer of the Stomach. Differentiation from Cancer and Treatment	674
Meek, Joseph A. The Use of Chloroform (Symposium on Anesthetics)	459
Moorhead, Edward L. Rupture of the Uterus During Labor; Operation; Recovery	30
Oehsner, A. J. Surgical Treatment of Non-Perforative Gastric Uleers	143
O'Donnell, P. S. Remarks on the X-Rays, with Demonstration of New Method of Taking X-Ray Pictures	105
Patrick, Hugh T. The Diagnosis of Graves' Disease	243
Pollock, Louis J., with A. B. Kanavel and A. B. Eustace. A Preliminary Report on the Advisability of Thyroidectomy in Catatonic Dementia Præcox	253
Pyncheon, Edwin. Sheet of Directions Given the Patient After a Tonsil Operation, Including the Treatment of Postoperative Hemorrhage	179
Ream, F. K. Nitrous Oxid and Oxygen in General Surgery	462
Reichmann, M. Diagnosis of Bone Lesions by Means of the Roentgen Rays	118
Ridlon, John. A General Consideration of the Needs of Crippled Children, Their Treatment and the Results to Be Expected	409
Roberts, A. J. Bookkeeping of the County Secretary	83
Rogers, Cassius C. Surgery of the Brain and Its Coverings	431
Sala, E. M. Subserous Appendectomy	388
Schmidt, Louis E. Vesical Symptoms Due to Diseases External to the Bladder	526
Scott, H. Foreign Bodies in the Intestines	46

	PAGE
Shambaugh, George E. Why A Peripheral Tone Analysis Is Necessary to Explain the Phenomena of Tone Perception	611
Spalding, Heman. Typhoid Fever from a Municipal Standpoint	308
Stremmel, D. C. When Shall We Advise Operation for the Fibromata and Myomata of the Uterus	394
Steindler, A. Muscular Power in Tenotomy and Tenoplasty	167
Tice, Frederiek. Cutaneous Reactions of Tuberculin	274
Turley, Francis. Technic of Radiography	744
Vail, Ruth, and Mary C. Lincoln. Comparative Results in the Treatment of Gonorrhea in Young Girls	191
Vanderhoof, Don A. Vaccine Treatment of Iritis	686
Wagner, Carl W. Brain Surgery... ..	33
Walls, F. X. Pyloric Stenosis in Infancy	402
Weis, E. W. Suggestions from the State Secretary	79
Weld, E. H., and Markley, P. L., Report of a Case of Hodgkin's Disease	662
White, H. O., and R. R. Duff. A Unique Foreign Body in the Male Bladder and the Removal by Suprapubic Cystotomy	543
Wilder, William H. Intraocular Syphilis	748
Williamson, C. Spencer. Value and Limitation of Salt-Free Diet and Restriction of Fluid in Nephritis..	506
Wilson, John G. The Telephone Theory	608
Witherspoon, John A. The Doctor in Civic Life	12
Wood, Casey. Extracocular Syphilis	747
Woodyatt, R. T., Prepared Foods and Diabetic Articles	666

MARRIAGES.

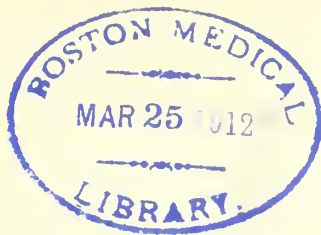
	PAGE
Allison, C. M., Canton.....	236
Baer, A. W., Chicago	495
Barry, E. L. H., Jerseyville.....	237
Bennett, M. E., Grant Park.....	495
Bullard, Robert Irving, Springfield.	764
Bundy, H. W., Sadorus	633
Bywater, J. B., Mount Morris.....	495
Cass, J. L., Taylor	133
Daly, V. M., Pontiac	633

	PAGE
Danell, Karl A., Chicago	236
Derdiger, Aria L., Chicago	495
Fast, Harry DeWitt, Mackinaw....	764
Ferguson, E. C., Edwardsville	495
Goodin, George J., New Hartford..	764
Goodpasture, Lloyd E., Thayer....	764
Graves, R. E., Chicago	237
Hastings, J. B., Alton	134
Hermann, Emil H., Highland.....	764

	PAGE		PAGE
House, Walter Wilson, Thompsonville	764	Scullin, C. E., Peoria.....	236
Hottinger, E. S.	236	Stevens, Rebert E., Rochelle.....	764
Hutchins, Ormand E., Warsaw.....	236	Streng, William H., Spring Grove ..	236
Klebs, A. C., Chicago	133	Swift, Wm. J., Chicago	633
Koll, Irvin S., Chicago	495	Taliaford, Frank, Mazon	360
Larkin, W. F., Chicago	133	Tankersley, George, Owaneco	236
Little, E. H., East St. Louis	134	Vail, Ruth, M.D., Chicago	633
Milligan, C. W., Springfield.....	764	Venn, Walter W., Aurora	236
Moore, Ralph Vernon, Amboy.....	764	Walker, George S., DeLand	633
Motley, Ernest Grogg, Virden.....	764	Williams, Byron G. R., Paris	633
Murray, A. N., Chicago	633	Winsor, Stanford K. Anand, British	
Nathan, E. E., Chicago	633	India	133
Ranney, T. P., Chicago	236	Wolover, Aaron P., Willisville.....	764
Schroeder, G. H., Chicago.....	633		

DEATHS.

	PAGE		PAGE
Angell, G. M., Atlanta	496	Luken, M. H., Chicago	134
Baccus, V. J., Chicago.....	362	Lumley, Robert, Watseka	362
Blauw, Wm. C. A., Chicago.....	134	Lycan, Riley S., Paris	633
Boughton, Darius F., Chicago.....	765	McClintock, A. W., Cissna Park....	238
Bourscheidt, Frank Charles, Peoria..	765	McRuark, James, Willisville	237
Boykin, Thomas J., Chicago.....	765	Marsley, Mrs. L. E., Peoria	361
Boysen, K. L., Chicago	495	Martin, George A., Brownstown ...	496
Briggs, George W., St. James, Mo..	360	Miller, J. W., Madison	360
Carpenter, Geo. T., Chicago	360	Moulton, G. A., Alma	134
Carter, Levi W., Peoria	237	Nelson, E. LaFon, Springfield, Mo..	134
Chatterton, Wm. A., Elgin	237	Park, F. W., Fieldon	134
Christie, Robt. J., Quincy	362	Pleavin, A. E., Elgin	633
Conner, J. J., Pana.....	765	Pratt, R. D., Chicago	134
Darby, B. F., Paris	237	Quirk, J. J., Chicago	634
Davies, H. E., Emporia, Kan.....	634	Robbins, Joseph, Quincy	238
Eidson, H. A., Willow Hill.....	634	Scales, Y. D., Springfield	238
Eidson, Henry A., Willow Hill.....	766	Scobey, William E., Kankakee.....	765
Evans, C. H., Chicago	634	Shears, G. F., Chicago	496
Fleming, W. L., Shelbyville	634	Shubert, J. J., Kankakee	134
Fox, Geo. M., LaGrange	237	Smith, John R., North Carmi	237
Fraser, J. N., Kankakee	360	Speer, J. G., Decatur	238
Fuller, S. L., Chicago	237	Stevenson, Sarah H., Chicago	361
Garnsey, C. A., Batavia	495	Stone, John W., Springerton	237
Gibson, Robert, Alton.....	764	Struzynski, L. Joseph, Joliet.....	764
Gmelin, Rudolph, Chicago	496	Swigert, Joshua, Dunning	237
Griffith, William T., Washington ..	496	Taylor, F. J., Chicago	134
Gurney, Seneca D. E., Quincy.....	237	Thome, Arthur M., Chicago	134
Gwinn, E. C., Sadorus and Paris ...	633	Thompson, Charles C., Taylorville. 764	
Haines, W. E., Bushnell	496	Thurman, W., Detroit	360
Hagey, J. M., Mount Morris, N. Y. 362		Tomlinson, W. M., Wilmette	238
Hall, A. J. G., Kinmundy	134	Tuttle, J. E., Myersville	237
Hatfield, Marcus Patten, Chicago... 767		Valentine, Sara L., Chicago.....	360
Howe, Melvin F., Lake Charles, La. 237		Waiss, George C., Chicago.....	765
Hunter, A. DeTurk, Savannah	496	Walters, Nelson P., Chicago	237
Ives, Franklin B., Bureau.....	765	Wassall, Joseph W., Chicago	634
Jones, John Albert, Springfield.....	765	Welch, Roy, Lincoln	633
Jumper, Simon, Marshall	237	Wheeler, H. G., Breckenridge.....	765
Kinkhead, A. G., Greenfield	361	Whitford, L. C., Chicago	134
Kinley, J. B., Chicago	134	Willard, Edwin R., Wilmington ...	634
Koch, C. L., Quincy	134	Wilson, Robert M., Lincoln	360
Kurtz, C. E., Chicago	496	Wilbur, Chas. T., Kalamazoo, Mich. 496	
Layman, S. J., Tamaroa	238	Wright, John, Clinton	238
Leech, M. S., Chicago	237	Ziesing, Henry, Peru	634
Leeds, L. L., Lincoln	258		



ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF
THE ILLINOIS STATE MEDICAL SOCIETY

ENTERED IN THE SPRINGFIELD POSTOFFICE AS SECOND-CLASS MATTER.

VOL. XVI

SPRINGFIELD, ILL., JULY, 1909

No. 1

ORIGINAL ARTICLES

GALLSTONE DISEASE.*

JOHN B. DEEVER, M.D., LL.D.
PHILADELPHIA, PA.

The progress of surgery since the introduction of antiseptics has been such that we have accomplished more than the most sanguine hoped for or predicted twenty-five or thirty years ago. In every direction the surgeon has led the way and has advanced his specialty so that he stands on a par with the clinician and is no longer considered a "mere mechanic" or as representing simply the mastery of purely technical knowledge.

Surgery has advanced in this way because the pioneers in various fields have not been content merely to follow the lines laid down for them by internists and by pathologists, but have sought to place their art upon a firm basis—clinical experience supported by autopsy upon the living, scientific laboratory methods and accurate pre-operative diagnosis.

To survey the whole field of surgery is hardly within the scope of a single paper such as this. Its branches are so many, its lines of investigation so varied and its triumphs in such diverse fields that it would be useless for us to attempt to include them all.

There is one portion of the body which has belonged practically entirely to the present surgical era, that is the abdomen. It is not difficult for us to understand how the older surgeons dreaded the invasion of the peritoneal cavity. Almost anything would be resorted to before this was done. And this was so with good reason, for almost every operation upon viscera which must be approached by traversing the peritoneum ended fatally. How could it be otherwise when on this sensitive culture medium there were deposited innumerable pathogenic bacteria? An understanding of the principles of asepsis was absolutely

* Delivered at the Fifty-ninth Annual Session of the Illinois State Medical Society, Quincy, Ill., May 18, 19, 20, 1909.

essential to the accomplishment of anything within the peritoneal cavity, and until this was brought about, scarcely more than ten years ago, abdominal surgery was practically non-existent.

It is not necessary for me to enumerate to you the triumphs of abdominal surgery in its brief but magnificent career. Every day we have brought home to us a realization of the utter helplessness of the surgeons of the past in the face of their inability to invade the abdomen. The operations of which we hear most, those which are most forced on our attention in practice and those as a rule calling for the highest degree of skill and judgment, are the abdominal ones.

The development of abdominal surgery in its various subdivisions has not been an even one. Thus the surgery of the appendix is, in this country at least, upon a firm basis, both as to surgical pathology, rational treatment and operative technic. That of the stomach, on the other hand, is, comparatively speaking, still in its infancy. Our technic is fairly well perfected, but our diagnostic methods and indications for operation are as yet more or less obscure. Perhaps midway between these two extremes we have the surgery of the biliary tract and particularly that dealing with gallstone diseases. A consideration of this most interesting subject will enable us not only to show in what directions surgical thought and action are tending as regards it alone, but also to show most clearly just what difficulties we have to meet in every branch of surgery of the abdomen.

The term gallstone disease—the “Gallenstein Krankheit” of the Germans—in itself shows our progress in the knowledge of the condition under discussion. Formerly we were prone to speak of gallstones themselves, regarding them, not as the manifestation of a disease, but more as foreign bodies which, in some mysterious way, had been formed within the gall bladder but entirely apart from any true diseased condition of the bile passages. Our later experience has led us to see that such an assumption is entirely incorrect. We have to deal with a disease entity, a sickness definite in its pathological manifestations and more or less clear in its clinical symptoms.

The first question to be answered in connection with such a disease would, of course, be, “What is its nature? Why do we have gallstones formed in one person and not in another, when we find in each apparently similar conditions? What peculiar change in the liver, the bile, or the ducts causes the formation of the concretions which we call gallstones?” It can be stated without hesitation that gallstone disease, in common with all the other lesions of the gall bladder and ducts, except those associated with the formation of neoplasms, is due to an infection. In other words, for a patient to develop gallstones we must first have had an infection of some sort.

It was formerly supposed that bile was bactericidal and that infections of the biliary tract were extremely rare. On the contrary, bile has been found not only without detrimental action upon bacteria, but has been proven to be a very good culture medium for many forms of germ life.

When infection of the gall bladder does occur the final results depend largely upon the nature and virulence of the micro-organism concerned. Thus an acute infection with virulent bacteria will give rise to an acute cholecystitis. Gallstones are, in practically every case, the result of a subacute or mild infection—i. e., an infection by an attenuated culture of a slightly virulent bacterium. Nor will such an infection invariably cause gallstones. Why, however, in one instance we should have a calculous and in another a non-calculous cholecystitis in infections apparently analogous, has not so far been discovered.

At the time of operation it may be impossible for us to determine the presence of bacteria. Yet that should not lead us to suppose that they have not been present. It is well known that in chronic infections of any cavity or hollow viscus the pus or other contents are apt to be sterile even when the condition in its onset has been frankly infectious or even suppurative. Some of the cases of cholelithiasis in which our cultures have been sterile have been those in which we have had plain evidence of recent purulent conditions. Moreover, Gilbert and Fournier and Chauffard have found that sterile bile may be obtained in patients in whom calculi are found which contain living bacteria in their interior.

Of 342 cases of cholelithiasis operated upon by me within the past seven years 198 were examined bacteriologically. The cultures were sterile in 103 cases, or 52 per cent. In other words, the infective organism had died out after originating the calculous formation—another illustration of the fact that calculous disease is originally caused by non-virulent and attenuated bacteria.

The micro-organism most frequently found is the *Bacillus coli communis*. This was found in 61 cases of the 95 in which there was a growth, or 64.2 per cent. The *Bacillus typhosus* was found in 20 cases, or 21 per cent. Other organisms found were the *B. pyocyaneus* and the various forms of pyogenic cocci in pure or mixed culture.

To me the most interesting feature in these statistics is the frequency with which we find the typhoid bacillus. Of particular importance is the fact that in 7 of the 20 cases there was no history of an antecedent typhoid fever. We see, therefore, that infection by this germ is one of the most prolific of gallstone disease. It is quite probable that it would have been found at the outset in a considerable proportion of these cases which were sterile on examination. In those cases where there was a clear history of typhoid, the interval after which the organism was found in the gall bladder was often a great one—in one instance forty-one years.

Bacteria probably gain entrance to the biliary tract through the portal circulation, although some may reach the gall bladder directly by means of the choledochus and, in exceptional cases, by contiguity from other organs or by the lymphatic system.

Granting that infection is the primary and underlying cause of gallstone formation, it still remains for us to explain just in what manner the calculi are formed. This is a question far easier to propound than

to answer in a satisfactory way. The view commonly accepted is that of Naunyn of Strasburg, who held that, as a consequence of infection, there was a desquamation of the epithelial cells of the gall bladder, separation of the cholesterol from them and the formation of the stone nucleus by the cholesterol, bile-calcium salts and epithelial detritus in combination. Stasis of bile is said to favor such formation, and no doubt does so.

It is scarcely a matter of interest to consider the varieties of stone. As far as symptomatology or secondary pathological processes go they act in an identical manner. It is my belief, moreover, that practically all gallstones are formed within the gall bladder itself. Nor is it possible to explain, though it might be an interesting question for theorizing, why in one case we have one stone and in another several and in another hundreds.

As predisposing factors for the formation of gallstones we must consider primarily two—age and sex. The influence of sex upon the occurrence of gallstone disease is well known. About 75 per cent. of my cases have been in the female sex, and this corresponds with the experience of others who have had opportunity to see a considerable number of cases.

One of the arguments used by those who were inclined to oppose the infectious origin of biliary calculi has been the apparent discrepancy between the age at which they are most frequently found at operation and postmortem and the age at which acute biliary and intestinal infections are most common—e. g., in early adult life. In going over my case histories I have been struck by the fact that, while more operations were performed upon persons between forty and sixty than upon patients under forty years, yet that in many of these instances the history of the present illness ran back many years. In other words, the first symptoms of trouble within the bile passages were found just within that period of life when infections of this tract, either primary or secondary, are most common.

When gallstones do form they may or may not give rise to various other grave pathological conditions of the gall bladder, its ducts, and even the liver. It is upon the association of other lesions of the biliary tract and surrounding structures that most of the symptoms depend. That is to say, gallstones lying quietly in a gall bladder in which their infection and its consequences are no longer evident probably give in many instances symptoms of a very minor nature. It had been thought by Krause many years ago that there were certain symptoms which denoted the active formation of gallstones. I do not believe this to be the case. Rather are the signs which he describes those of the indications of the presence of gallstones already formed, but without the concomitant changes beyond the biliary tract or within it which so gravely alter the pathology of the condition. In other words, there are certain symptoms to which even quiescent biliary concretions may give rise. It is true that these symptoms are almost invariably uninterpreted, that they are most deceptive and hard to value correctly, and that the

fundamental condition is not recognized, but one of our present problems in the disease under consideration is the recognition of just these early symptoms.

Any discussion of the symptomatology or treatment of gallstone disease must of necessity be based on a correct understanding of the pathology of its various forms. It is not enough merely to be able to recognize the presence of biliary calculi without realizing what their accompanying complications are or may become. Nor is it safe at all times to adopt a radical line of treatment upon such a diagnosis without recognizing what difficulties may be met with in such a procedure.

Just as the conception of gallstones as merely one manifestation of a diseased condition has been gradually developed by years of study, so has our conception of the symptomatology and pathology of the disease changed. Formerly every attempt to explain the symptoms was based upon an effort to do so by attributing them to some action of the gallstones themselves. Thus all jaundice was accounted for as being obstructive by direct blocking of the ducts by the stone. Of course, this is sometimes true, but by no means in every case. Pain was accounted for by direct pressure of the stone upon various adjoining viscera. Our later researches in the living pathology of gallstone disease have entirely changed our preconceived ideas upon this subject.

Gallstones as extraneous bodies within the biliary system do have a direct detrimental action upon surrounding structures. Thus they may obstruct the choledochus and cause jaundice; they may produce pressure necrosis of the gall bladder; or, by obstructing the natural outlet of the gall bladder or in their passage through the biliary ducts, they may cause typical colic.

Far more important, however, than these direct results as regards both symptomatology and treatment are the secondary effects upon the liver and biliary passages and upon organs entirely beyond the biliary tract. Unlike those arising directly from the presence of stones, these secondary symptoms are in many instances the results of delayed surgical interference after a diagnosis has, or should have been, made.

Practically every case of gallstone disease, as we now know, has at one time been accompanied by some grade of cholecystitis and cholangitis. Thus, in every case of cholelithiasis we have a condition potentially very destructive and severe, although actually very mild in the majority of instances. In most cases the accompanying cholecystitis as found at operation is a catarrhal one which quickly subsides after removal of the cause. In about one-sixth of my operative cases I have found a more or less marked empyema, a rather higher proportion than one would be led to expect from the experience of other writers upon the subject. In about nine per cent. of my cases the inflammatory process within the walls of the gall bladder has been so severe as to produce gangrene.

There has, however, been less misconception about a frank cholecystitis occurring in the course of gallstone disease than about those processes originating within the biliary tract which manifest themselves

primarily in pathological processes beyond the tract itself. I refer to the results, both early and late, of infection which has spread beyond the gall bladder and its ducts to the surrounding structures. The course of a purulent infection upward along the hepatic ducts into the liver, an acute ascending purulent cholangitis or suppurative hepatitis; these are unusual, but easily understood when we consider the anatomy of the biliary system. But in the majority of cases the infection does not produce such fulminating results. It usually is subacute; we have then a chronic cholecystitis, occasional blocking of the ducts by swelling or by impaction of a calculus, and as the process spreads upward to the liver a gradual but certain chronic hepatitis or cirrhosis develops. More insidiously still, the infective agent penetrates the walls of the gall bladder and ducts, affects them, and goes to structures beyond to cause further damage. The gall bladder may be acutely perforated, though this is comparatively rare. More often it and the ducts are left by the infection with shriveled, chronically inflamed walls, ever liable to fresh infection or to damage from even slight trauma by the retained stones.

Furthermore, the surrounding structures do not escape without damage. A local peritoneal irritation takes place, the contiguous surfaces are glued together by a fibrinous exudate, the infection subsides, but the exudate remains. What then? By no means a resolution of the exudate. On the contrary, it becomes firmer and firmer, and when, at operation or autopsy, we inspect such an abdomen, we find stomach, liver, gall bladder, duct and colon all in an apparently hopeless tangle, so that it is marvelous that they have been able to perform their functions at all.

Not only are these important organs of the upper abdomen affected, but the baneful effects of biliary infection reach in time also an organ perhaps the most important of all in the process of digestion—namely, the pancreas. As our researches upon the functions of this gland have advanced we have found ever new manifestations of its activity and value. Anatomically its outlet is so situated that any inflammation in the choledochus, and especially in the ampulla, is apt by retrograde movement to reach it. A stone in the choledochus or ampulla also will by its action as a mechanical barrier dam back the bile and cause a flow into the duct of Wirsung. I have found the presence of chronic pancreatitis in over 10 per cent. of my cases of gallstone at operation,¹ and doubtless it would have been demonstrated in a still greater proportion had we been able to make a microscopic examination of the tissues. Even this would perhaps fail to show its true frequency, for I am convinced that there are many disturbances of cellular function which leave behind them lesions undemonstrable by our present methods of pathological investigation.

I shall not pause to consider those rarer complications such as biliary fistula, purulent pericholecystitis, for they do not constitute gall-

1. Mayo found the pancreas involved in 18 per cent. of operations on bile ducts; in 4 per cent. of operations on the gall bladder.

stone disease itself, but are evidences of neglect of proper, that is, surgical treatment.

From this brief résumé of the pathology of gallstone disease it is evident that we can have no hard and fast symptomatology. When the stones lie in a gall bladder in which there is no infection the picture differs entirely from that which presents itself when we have acute inflammation, and quiescent stones do not give the signs which guide us when a stone is passing through the ducts. Moreover, the various complications of the disease each give symptoms doubtless peculiar to themselves but frequently difficult of accurate determination. Thus a mass of adhesions would give us symptoms entirely different from those presented by an engorged and poorly functioning pancreas.

Can we gauge the symptoms correctly? Can we diagnose gallstone disease early, or must we wait until it manifests itself by those sequels classed as complications?

I believe that we can, with comparative certainty, determine the presence of biliary concretions fairly early under only one condition. It is this—that we discard that symptom-syndrome commonly called the classical one in gallstone disease.

Those combinations of symptoms in the diseases known definitely to practitioners of, say, fifty years ago and known to them as pathogenic or classical are still with us. Are they still of the value formerly placed upon them? I hardly think so. For instance, we find in all our text-books the distinguishing signs of carcinoma of the stomach—retention, vomiting, tumor, cachexia. These are not the signs of a disease; they are the evidences of its ravages when it is beyond control. Similarly that group of symptoms by which we were taught to recognize the presence of gallstones, typical biliary colic, associated with nausea and vomiting, jaundice, with fever and often tumor in the gall bladder region, are those of a stone either in a duct or within an irritated, infected gall bladder.

Those who wait for this typical grouping of symptoms miss what is undoubtedly the time of election for proper treatment. I shall endeavor to reconstruct for you the clinical history of a case of gallstone disease as we have it at a somewhat earlier time.

Our patient is, as a rule, of middle age, fairly nourished and not evidently sick. He consults his physician about crampy pains in his stomach, coming on without apparent cause and at no regular intervals. He notices at times a feeling of oppression in the epigastrium, finds himself frequently eructating, and in many instances tells us that he is relieved by eating often, and that a light lunch at bedtime is the surest preventive of distress during the night.

The case does not respond to the ordinary methods of medical treatment and the patient classes himself as a dyspeptic. I have noted a history of chronic indigestion in about a fourth of my cases and it was doubtless present in more, but not carefully elicited in taking the history. Its symptoms are variable, the most notable, however, being epigastric distress and heaviness after meals, and the apparent or real pres-

ence of a great amount of gas, eructation of which often gives temporary relief.

It must not be supposed that the dyspepsia associated with gallstone disease gives symptoms peculiar to itself. It is in every way identical with that which we find in early gastric, duodenal, or even pancreatic disease. In the primary stage of disease of any of these organs errors in diagnosis are far more common than correct diagnoses. Even in the later stages of the various pathological changes in the biliary tract and the duodenum, for instance, we are unable definitely to determine the exact location of the disease. I can recall several instances of duodenal ulcer in which the symptoms could not possibly be differentiated from gallstone disease. The further progress in the disease, however, generally clarifies the diagnosis. After a period of dyspepsia, which may last for years or only months, we have the occurrence of pain as a definite symptom. This is the most constant symptom of gallstones, and in my experience is present in some form in over 98 per cent. of all cases. In 90 per cent. there is at some time sharp or colicky pain localized definitely in the gall bladder region or the epigastrium; and this, though sometimes referred to the shoulder or back, is not invariably so. It may take considerable cross-questioning to elicit from the patient a history of even quite severe pain, as it is attributed to indigestion or "bilious" attacks and so passed over and forgotten. The pain, while almost always present at some stage of the disease, is no more characteristic than the early dyspeptic symptoms. A chronic duodenal or gastric ulcer will give pain just as severe and similarly located and repeat this over equally long periods of time. But the pain of a duodenal ulcer often has some direct connection with the taking of food and may be brought on by indiscretions in diet. Nor do we have pain in gallstone disease, because of entire emptiness of the stomach and the presence of unemployed hydrochloric acid, producing the "hunger pain" so common in duodenal ulcer and dwelt upon so forcibly by Mr. Robson.

Indeed an organ so far removed as the appendix may give us symptoms referred entirely to the upper abdomen sufficiently like those of gallstone disease to cause hesitation in diagnosis. Furthermore, it is well known that an infected appendix may actually cause disease of the biliary tract, the infectious agent traversing the portal circulation.

We have then, so far, no symptom which even approaches the pathognomonic. But when, in addition to general dyspeptic symptoms and pain of a severe kind localized to the epigastrium or right hypochondrium, localized or radiating, we have *jaundice*, our diagnosis is almost made. This, indeed, may be caused by some disease beyond the biliary tract and liver, but it is frequent in but one, which I shall discuss later. With indigestion, then, pain and jaundice, we are almost certain that we have some serious lesion within the biliary tract, and if the condition is of long duration it is almost sure to be due to gallstones. Many who have had extensive experience in gallstone disease have stated that jaundice is a symptom of but slight importance. It has been my experience that 70 per cent. of cases give, on very careful ques-

tioning, a history of jaundice, and, indeed, half of my operative cases have been jaundiced at the very time of operation.

The presence or absence of this symptom will depend largely upon the location of the stones and the accompanying pathological processes. Indigestion and pain are the accompaniments of biliary lithiasis even when the stones are comparatively quiescent. For the production of jaundice there must be some obstruction to the flow of bile, either by the stone directly, as by one situated in the choledochus, or by a catarrh of the bile ducts secondary to the presence of the stone. Jaundice also, in its occurrence, persistence and intensity, often gives us a clue as to the location of the calculi. The differential diagnosis, however, I shall not consider.

Granted, then, the presence of indigestion, pain of a certain location and character, and jaundice, and our diagnosis is made. In addition we may have epigastric tenderness, nausea and vomiting, and fever of a more or less typical sort, but these are of less importance, except to render certain a diagnosis already made.

When we have the complete symptom group a diagnosis is generally easy, and as to its difficulty in the early stages I have already alluded. There is, however, one condition which may in every way stimulate the symptoms of gallstone disease—that is chronic pericholecystitis of the adhesive type.

I have already referred to the formation of adhesions as a result of a pericholecystitis without perforation of the gall bladder or ducts. In 60 per cent. of gallstone cases we find this condition and its symptoms often obscure those of the original lesion. I have found that, in those cases in which these adhesions are most markedly evident, the symptoms of an antecedent or accompanying indigestion are most prominent. It is very evident why this should be so. The organs of the upper abdominal region concerned in digestion are delicate structures functionally, if not anatomically. The distortion of stomach, duodenum, or transverse colon must cause interference with their function, vague, perhaps, as to symptoms, but certain and persistent in effect. How extreme may be the distress and disturbance of digestive function caused by these adhesions can not be appreciated without actually having seen such cases. It is not remarkable that they may simulate gallstone disease in its every symptom, even to the colicky "typical" pain, particularly if the adhesions are so situated as to encroach upon the bile ducts sufficiently to impair their lumen. In several instances I have operated upon what seemed to be an almost certain diagnosis of gallstones and found only dense adhesions. The operator would far rather deal with stones than adhesions, for in a thoroughly cleaned biliary tract with sufficient after drainage the reformation of calculi is rare, while it is at times utterly impossible to prevent the recurrence of adhesions. Moreover, even at the operation, they are often so dense and the tissues about them so weakened by disease that it is a very delicate matter to relieve the condition even temporarily. How harmful such old adhesions may become may be seen from the fact that in one of my cases of chole-

lithiasis which did not recover the cause of death was uncontrollable postoperative vomiting due to pyloric obstruction caused by traction by an old adhesion. I have learned from this case that in some instances gastroenterostomy, as well as removal of the gallstones, is necessary, and I have several times done both operations with success. The treatment of adhesions unassociated with gallstone disease must still occasionally be one of the surgeon's tasks; but the proper treatment of gallstone disease ensures their prevention by removal of calculi before adhesions form.

The differential diagnosis of gallstone disease is easy, difficult or impossible, according to the nature of the particular case under discussion, its stage and its complications. Early in the disease its differentiation is almost impossible, late in the disease the diagnosis makes itself. The intermediate cases are those in which our diagnostic ability is most likely to be tested to the utmost and those to which we must for the present devote most of our attention. It is possible that the future may bring us some method of diagnosing gallstone disease in its very incipency, yet I doubt it. The brilliant promise of laboratory methods of surgical diagnosis has remained unfulfilled and clinical examination can not go beyond certain limits. Dr. Waterhouse (*Lancet*, 1909, i, 1303) states that he has received much aid from the x-rays in detecting the presence of gallstones, but such exceedingly delicate work is required to differentiate the shadows cast by gallstones from those of other structures that only in the hands of an expert can this method be expected to be of any value at all. Our only hope is that the examination of patients as they come to the operating table, combined with most thorough and conscientious history-taking, will bring us to a still more definite appreciation of the fine points of early diagnosis.

The treatment of gallstone disease is a subject upon which we hear and read the most diverse opinions. There are still those who hold that, unaccompanied by complications, it is utterly beyond the province of the surgeon. Fortunately, however, this is not the view of the medical profession at large. To me it is axiomatic that the ideal treatment of any disease, or disease process, involves two things—first, the temporary relief of the patient, and, second, the prevention of a recurrence by removal of the primary cause. What would be thought of a physician who tried to cure a patient with a urinary calculus of his cystitis and pain without removal of the stone? Or of one who would treat a conjunctivitis while a foreign body upon the membrane nullified his efforts? Yet wherein would these differ from one who treats gallstone disease and leaves the stones?

It might be said that the resemblance of such instances is remote, that a patient may have gallstones and suffer no discomfort from them. Even if this is true, and I think it doubtful, shall he, once having suffered discomfort, continue to do so at longer or shorter intervals and have a constant dread of suffering?

If it were possible to anticipate the formation of gallstones it is conceivable that some treatment might be found to prevent their formation.

But, once formed, is that form of procrastination called medical treatment worthy of the name "treatment" when it merely awaits the possible but highly improbable spontaneous passage of a stone? It would be possible to recite a long list of so-called solvents for biliary calculi. It is but fair to state that they have one great therapeutic quality in common—uselessness. They can not be called harmless, for reliance upon them allows delay in resorting to proper, that is, surgical treatment.

That there are some cases of gallstone disease unsuitable for radical treatment none would be so rash as to deny. The very old, those who have other grave organic diseases, as of the heart, lungs, or kidneys, can not be considered favorable cases for any kind of operative interference. But in those who present no such contraindications there is but one proper treatment for gallstone disease, the removal by appropriate surgical means of the disease products and the removal, if possible, of the ultimate cause. The original factor in gallstone disease is infection; the resultant gallstones furnish our indication for operation.

Leaving aside for the present the mechanical side of the question, what must we consider the time of election for operative interference? It must be conceded that we can not differentiate a stone-forming biliary catarrh from any other mild biliary catarrh, and so it is necessary to wait until stones are actually formed before we have a basis for operation. The time of election is when we have to deal with gallstones entirely within the gall bladder and when complications have not as yet set in. Most surgeons, and even many progressive physicians, will admit that, in cases where no valid contraindication exists, operation should be undertaken so soon as the calculous nature of the disease is manifested by the classical signs. But, personally, I am now willing to go one step in advance of this, and to urge operation in the presence of the premonitory symptoms of upper abdominal disease, as they have been well called by Mr. Moynihan. At least the possibilities of modern surgery should be placed clearly before the dyspeptic, and if, as Kocher says, he "prefers to wait in suffering and pain for the stone to work its way down *per vias naturales*, he is but enjoying his personal privileges." But at the present day the surgeon is certainly justified in telling such a patient that experience has shown that the symptoms from which he is suffering can be quickly and safely cured by operation, and that he will be saved from eventual danger more rapidly and easily than by any other treatment.

When we do find gallstones they must be removed and their cause, if possible, done away with. The first requirement we can only fulfill by a most careful exploration of the viscus and its ducts in every instance. In the hands of so competent an operator as Hans Kehr calculi were overlooked in 2 per cent. of all cases. With surgeons less experienced in this line of work it is natural to suppose that this percentage is still larger and that the stones left behind account for many a case considered as one of recurrence after operation. With proper technic, however, there should be exceedingly few cases in which calculi are left behind.

The second requirement, removal of the cause, involves an attempt to overcome the infection giving rise to the stone-forming catarrh. I hold that in every instance we should take for granted the persistence of such a catarrh, in spite of bacteriological evidence to the contrary, and should drain in every case. It is not sufficient to provide for an opened gall bladder only that drainage which it receives through the biliary tracts. Who would think of allowing a possibly infected kidney to drain itself only through the ureter? The operation of "ideal cholecystotomy" has fallen into well-merited oblivion. I believe that without thorough drainage we may have a temporarily curative operation for gallstones, but its effect as a prophylactic against their future formation is entirely lost.

Perhaps the point of technic upon which operators are still most divided is the removal of the gall bladder; I do not agree with those who hold that it should be removed whenever it is possible to do so. A useless, shrunk or hopelessly diseased organ should undoubtedly be excised, but one which may become nearly normal anatomically and functionate properly should be left in situ.

Not only is the mortality of cholecystectomy somewhat higher than that of cholecystostomy, but there are to my mind certain other disadvantages connected with the entire removal of the gall bladder. Adequate drainage of the bile tract is more difficult to secure and is less prolonged; if the stone-forming catarrh still exists this may give rise to the formation at a later period of calculi within the ducts where they are apt to cause more difficulty; and, lastly, we are removing without a suitable substitute a bile reservoir which probably has some function which we do not as yet understand.

The more complex details of the technic of gallstone surgery do not belong to a brief résumé such as this. After all the surgeon of today should be able to see that, while technical detail is of great importance, correct diagnosis and understanding of underlying processes are still far more essential. We have had in gallstone surgery, as in other branches of the art, too many men to whom the operative procedure was almost second nature but whose knowledge never went beyond that. And especially in gallstone disease will our further progress depend, not upon advances in operating only, but upon earlier recognition and understanding of the disease process as a whole.

THE DOCTOR IN CIVIC LIFE *

JOHN A. WITHERSPOON, M.D.

NASHVILLE, TENN.

Mr. President, Ladies and Gentlemen:—I assure you that in selecting myself for this important duty no one could appreciate the honor more than your humble servant, whatever I may think of the justice of the selection.

* Address in Medicine, delivered before the Illinois State Medical Society, May 18, 1909.

Coming, as I do, from a section of the country justly noted for its hospitality, I want to say, without affectation whatever, that in many visits to the North I have yet to be able to recognize a difference in the royal welcome that has been accorded me north of Mason and Dixon's line and that south of Mason and Dixon's line. (Applause.)

In going over this beautiful city today with my host I could not help but believe that, after all, the imaginary line which unfortunately existed in the imagination of some people many years ago had by the grace of God been entirely eliminated. (Applause.) I was not only charmed with the hospitality, but with the beauty of this city. In talking with my friend and host I felt that he had good reason to be proud of these stately elms, festooned streets, and beautiful residences. At one time, in a speech of this sort, I was spoken to by a very eminent gentleman, who said, "I think you possibly are the most loyal man to your country I have ever heard talk," and illustrated it by the simple story of an old negro in Kentucky who thought that his master was the smartest man in the world, and I could not help but think that my host this evening was justly proud of this city, and felt toward his city something like I did toward mine and my country and your country as the old negro did about Senator Blackburn of Kentucky. He had always taken the position that Marse Joe was the smartest man in the world. Another negro one day said to him, "Jim, you always brag about Marse Joe. How about Marse Grant?" "Well," he said, "Sam, of co'se everybody knows Marse Grant was a smart man; he fought for this country, is bound to be smart; but he is not as smart as Marse Joe." "How about Marse Lincoln?" "Well, you see he was powerful smart. Marse Abe was smart; but was not as smart as Marse Joe." The other negro butted in with disgust and said, "How about the Lawd?" "Well, Sam, that is not a fair question. De Lawd made us, and made Marse Joe, and I reckon he is the smartest; but I have you to understand that Marse Joe is a young man yet." (Laughter.)

I feel in receiving this bountiful hospitality that it has always been true, especially with the American people.

In selecting the subject of the evening, ladies and gentlemen, it is but fair to you to state that I had selected a rather technical one until, being notified by your secretary, that it was expected I should talk in the presence of lay members, especially the ladies, and you know what a satisfaction it is to talk in their presence. But I felt that I must change the subject, and select one which might possibly be of some interest to all, namely, "The Doctor in Civic Life," and what his duties are.

Dr. Pettit, your president, has very largely covered some of the ground I had intended speaking about, but, ladies and gentlemen, one great reason why the doctor is so satisfied with his profession; one great reason why he is satisfied to delve into the mysteries of mankind, the illnesses of mankind, is, not because he is not a patriotic citizen, but simply because of the great and wonderful responsibilities that are placed on his shoulders when he assumes a diploma has given him the right to practice medicine. There can be to my mind no greater pro-

fession; there can be to my mind no greater obligation than the obligation that the medical man owes to mankind. If he alone is to be regarded as a mere pill-roller and powder-mixer, then he has fallen far short of his real avocation. The last few years, considering the wonderful progress of medicine, especially since the discovery of the germ theory of disease, there has been opened up a new field and a new usefulness has presented itself to him, and a new and added responsibility, and that is, that greater field of preventive medicine.

Ancient Greece and Rome were great just so long as their people were gladiators; just so long as their men were strong, athletic, physically and mentally robust. But the very moment they sank into decadence, the moment they undertook to tread the pathway of sin and iniquity, just that moment they started down their retrograde course. And so will any country be great in proportion to the health, the vitality and vigor of its people.

Now, if the greatness and destiny of this country depend on the health, mental and physical, of her people, then we as medical men have the care and protection of these people, have within the palms of our hands the controlling forces by which great epidemic diseases can be driven back, and we have an added responsibility of gigantic proportions of which we hardly realize.

We recall very easily a few years ago when cholera used to attack this country and spread like a withering blight over entire sections of it, claiming thousands of victims. With the discovery of its actual cause, with its life history properly understood and its methods of propagation understood, what occurred? It has not gained entrance into this country since 1873, and, notwithstanding it has knocked at the portals of New York, the medical profession stood like a barrier against it and said, Thus far shalt thou go and no farther. Yellow fever, that used to paralyze industry, absolutely drive everybody from their homes in our South land, stop agricultural pursuits, bring the pallor of fear to the bravest cheek, has, by the simple discovery of the mosquito theory of its propagation or production, practically been driven from our coast, and I honestly believe will never gain a foothold with enough severity or malignancy to be treated with the proper respect that it used to be. As long as the medical profession occupies the position that it does today, just so long are the American people safe. As long as the profession understands properly that their true sphere in life is to care for the loved ones of this country, and to keep back all threatening menaces to their happiness and health, just so long will the medical profession of America take its proper place in what it is and what it will be—namely, one of the noblest professions within the gift of God.

Let us take the terrible scourge of tuberculosis, one in which your honored president has done so much in proving to the people of Illinois and the rest of this country that it was perfectly possible to treat and cure tuberculous patients without necessarily going to climates hitherto regarded most favorable. Upon that basis he has argued here tonight

in his address, pointing out the importance of educating the people. If the people can be properly educated; if they can learn the lesson that tuberculosis is no longer hereditary; that it is no longer a disease that comes through some wonderful provision or punishment of God Almighty as the ancients thought, but that it is truly an infection, that it simply follows in the wake of lowered resistance and lack of vitality; that it comes because of improper sanitation and improper destruction of the germs as they leave the infected body; if they can be awakened to a realization of the fact that it is a preventable disease, and that it is a death-dealing scourge which has claimed for itself more victims than the combined armies of the world, incalculable good will have been accomplished, and it will no longer be the withering blight of our people. When the people are educated to the effect that typhoid fever is a widely disseminated infection, and one that is perfectly preventable, and realize that these twin destroyers are striking at the body politic of the nation—namely, attacking our young men and our young women as they are budding forth into full development and citizenship—then they will know what the profession of medicine has done for them. They will know the many long and weary hours that have been spent by the members of our profession in studying these great problems. When they know all this, and recognize it, they will see what they owe to a profession which, in my humble judgment, is one that has always been most self-sacrificing and devoted to the interests of the people.

Dr. Pettit is right when he says that the dissemination of knowledge, in so far as the public needs that knowledge, is absolutely essential, and I believe the best method by which it can be disseminated is through the secular press. I am as much opposed as any man to any advertisement. I do not think a good doctor needs advertising. I think he is known by his works: but when we come to his civic duties: when he faces the great problems agitating the minds of the American people today, he must recognize that by education, by his influence in his community, he should be at least an interested party, and oftentimes a leader in work for the benefit of his people. Anything that benefits mankind, it matters not what it may be, is within the domain of the medical practitioner.

Surgery has made most marvelous strides in the last few years. It was only about a hundred years ago when Ephraim McDowell, in a little log cabin in the wilds of Kentucky, performed his first abdominal operation (ovariotomy) and demonstrated to the world its great value. And what has happened since then? The American surgeons have shown the world that by the simple operation of that grand old man of pioneer days they had learned a lesson, had perfected plans until surgery today has fulfilled a mission beyond the wildest imagination of people themselves. Preventive medicine, then, I say, is the true function of the doctor. In preventing disease he must get the thorough cooperation of the people, and for that reason I agree with your presi-

dent that in the dissemination of this knowledge the people should be informed.

One other point has occurred to me in reference to the civic duty of the doctor. Just so long as there are corporate interests; just so long as there are men who must pass laws governing sanitation; just so long as the production of a good milk supply to cities is essential, just so long is the doctor absolutely essential and a very important unit in the success of these plans. Just so long as the state or nation must handle the great questions of quarantine, pure food and drugs, just so long is the doctor of necessity part and parcel of the necessary working machinery of that part of the salvation of our people. Ladies and gentlemen, the work that has been done in the passage of the pure food bill will stand, in my judgment, as a monument to the medical profession as long as time lasts. Avarice, commercialism, everything seemed to conspire to place in the various food products of this country articles deleterious to health, articles known to contain impurities, and which, of necessity, brought their bad effects, and yet the medical profession as a man stood shoulder to shoulder until they made the world realize the necessity for pure food. They got a law enacted which necessarily was a step in the right direction. But we must not relax our efforts. We must stand guard against the avarice, the money power which seems to have absolutely throttled the instincts of goodness and humanitarianism in some men, and if we give way they will again gain a foothold and our foodstuffs will be adulterated again, just as quickly and as easily as they were formerly.

The same is true with regard to proprietary and patent drugs. To me one of the saddest reflections on my profession is that some doctors seem to have arrived at that stage in their profession when they are perfectly willing for the commercial houses to prepare combinations of medicines for them, and label them, stating what they can be used for. These commercial houses put in these prescriptions ingredients of which the practitioner knows nothing. He prescribes them for his patients, and he acts as the dispenser of them. Gentlemen, when the medical profession fails to realize that it is giving something about which it knows nothing, and is dubious, to people whose instincts are entirely commercial; when it fails to realize that its function is to serve the people and to cure disease, restoring to health those who are dependent upon it, physicians ought to have enough knowledge of drugs to know how to formulate their prescriptions for the individual case at the time. (Applause.) I have a great deal of respect for Chicago and New York and other large cities, but I have not enough respect for them to believe that there is any pharmaceutical firm within their corporate limits that can put a lot of drugs in a prescription and send the prescription to Nashville and tell me how to treat disease with it. (Applause.) I fear that a great many practitioners of medicine have almost lost the art of prescription writing. I do not pretend to say that medical teaching is not at fault. I know that very frequently we have neglected seriously, those of us who are teachers of medicine, giving instructions to young

men in regard to the proper methods of prescription writing. But, gentlemen, it is not so bad as that. It is that careless indifference; it is that plea for the proper combination of drugs; it is that plea for palatableness which seems to tickle the fancy of some men and influences them to adopt combinations for treating patients of which they know nothing. I hope there is nobody in the state of Illinois practicing medicine who does this. There are a few in Tennessee. (Laughter.) I hope there is not a member of the Illinois State Medical Society who would permit any drug house to formulate his prescriptions. I hope there is not a man here who would give a proprietary or patent medicine to his patient without a proper knowledge of the trouble the patient has at least, because I know he does not know what the trouble is in the drug, but I hope he has not gotten so far down in the scale of knowledge that he does not know what is the matter with the patient. (Laughter.) I do not blame these drug houses. Let them make their products. It is a matter of commercialism. It is our fault if we prescribe them blindly. The demand created by us is being fulfilled, and I say to you that as long as we doctors patronize these drug houses, just so long will they prosper and just so long will we be the recipients of their products. If we are going to be a scientific profession; if we are going to be teachers of the people; if we are going to educate them in the great laws of prevention, then I say, let us take just a few lessons in the prevention of this bad habit which is one of the crying evils of the medical profession today. On the other hand, I believe that the medical profession is broad enough, educated enough, and appreciates the importance of this matter sufficiently to put behind it such a practice as this, and as preventive medicine grows in importance and the people realize the importance of having for their doctors men who are scientific and who are determined to do the right thing under any and all circumstances, greater good will be accomplished. For this reason the doctor is necessarily a man who should take an interest in the civic life and be interested in everything that influences mankind. I do not say that the doctor ought to enter politics; I do not believe I would go that far, but if we could get somebody into politics who is pure, who is absolutely untrammelled by any isms, who is determined to do right, then I believe we will have accomplished our duty in civic life as well as in professional life.

I always feel at home in the presence of medical men, and I want to say to you, in the medical profession I find the liberal spirit which has always actuated physicians spread broadcast everywhere I go.

It is to their credit, ladies and gentlemen, that I can see them, even in the trying times of bitter war, when every man stood against his brother, and when they had some rights to their opinions and by the same exacting determinations put aside forever that unfortunate condition that existed in our own country; yet be it said to their honor, hundreds of Confederate soldiers were the recipients of surgical attention at the hands of Federal surgeons. It did not matter what they wore, blue or grey, they were the sons of God, and in the eyes of the medical

profession they all received the same skilful, the same scientific attention on the field of battle or in the field hospital. Notwithstanding the members of our profession have wishes and desires, I want to say to you, that there were no more patriotic men than they in that strife, when they laid aside those wishes and desires for the sake of humanity and gave their skill and attention to all alike, all of which goes to show what I have argued—that the medical profession is the grandest and most glorious profession, with, possibly, the exception of the ministry of God, that has ever been presented to mankind for his protection and his care and his welfare. (Applause.)

SOME SURGICAL DISEASES OF THE STOMACH AND DUODENUM AND OPERATIVE TREATMENT.*

J. A. DAY, M.D.

JACKSONVILLE, ILL.

It is the intent of this paper, as the title suggests, to discuss some of the surgical diseases of the stomach and duodenum, and it appears that those which are of chief mutual interest to the general practitioner and surgeon especially are ulcer and malignant neoplasm involving said organs. These lesions will, therefore, have special consideration, only brief attention being given to the pathology or other phases of the subject, the diagnosis and surgical treatment of such maladies being its chief aim.

The study of the subject might be simplified to a degree by considering the stomach and duodenum, or its upper part at least, as a single organ. These organs, being composed of very similar structures and having such an intimate relation to one another, necessarily suffer much in the same manner from such diseases and present symptoms which are much in common. Physiologically the upper two inches of the duodenum, as some investigators have pointed out, is for all intents merely a gastric prolongation; therefore those natural influences that predispose to gastric disease may indirectly produce an analogous condition in the upper extremity of the duodenum. This is especially true when we consider the etiology of ulcer in these regions, and to more or less extent regarding the cause of malignancy in these situations.

The stomach, being the receptacle for such a variety of oftentimes incompatible mixtures and severe irritants, and being subjected to abuses in the way of irregular and excessive eating and unusual variations in temperature, is necessarily more subject to disease than other organs; discharging as it does its contents into the duodenum unaltered in their chemical constituents, they are likewise capable of producing a destructive influence upon the mucous membrane of this organ also, especially if impaired by lowered vitality. Impairment in nutrition of certain area in either organ, acted upon by irritating foods and corrosive acid juices,

* Read at meeting of the Brown County Medical Society.

can be assigned as the most plausible cause of ulceration at least, and the ultimate results of ulceration may be given as the frequent cause of cancer. Although many theories are advanced, it is hardly appropriate in this paper to speak of the many attempts to assign a specific cause for these diseases.

As a further proof that conditions that produce ulceration in the stomach bring about a like condition in the duodenum might be mentioned the fact, as Douglas suggests, that ulcers of this character in the duodenum are found situated above the common duct. This, he explains, is owing to the fact that the bile and pancreatic juice renders alkaline the acid-chyme, and thus overcomes its corrosive action upon the mucous membrane below the entrance of the duct, and hence prevents ulceration.

The behavior of ulcer in these parts is variable, according to their individual peculiarities, and do not differ materially in the separate organs, except as to symptomatology. As a rule their action is slow, showing an indolent tendency; they may heal spontaneously or remain in a dormant condition; they may be acute and cause rapid destructive effects upon the walls of these organs, or, after months or years of changes from one degree of severity to another, may suddenly take on violent destructive tendencies and produce a most serious emergency. Improvement in the conditions that were accountable for the ulcer may cause healing, with or without scar-tissue. If the ulcer is replaced with cicatricial tissue, damage will be occasioned depending upon its extent and also its situation; if in the pylorus or upper part of duodenum the contraction occasioned may result in stricture; if in the larger portion of the stomach wall the ulcer or ulcers may heal, or recur again and again; and if scar tissue forms it may by its deforming influence cause hour-glass contraction of this viscus.

The time required for an ulcer to penetrate the walls of these organs, and the amount of surface of the lining membrane they may eventually occupy, is a process that can only be influenced by changes one way or the other in the original cause; most often as the deeper structures are impinged upon, adhesions, as if in anticipation of the impending danger, quickly form a protective wall and prevent, for the time being, perforation: or by thus delaying the ulceration process give opportunity for improvement in the nutrition of the part, and hence ultimate healing. Mikuliez and Kausch have called attention to the important fact that protective adhesions are less likely to form between the stomach and anterior wall of the abdomen on account of the constant motion brought about by respiration.

Such a fortunate state of affairs as just spoken of—namely, formation of protective adhesions—may fail to take place, however, and, as frequently occurs, perforation may take place rapidly and unhindered, thus causing the most dangerous complication, calling for urgent surgical interference. If this lesion does not take the above course it may, as sometimes happens, ulcerate through the walls of an important blood vessel and cause hemorrhage of an alarming degree, which, if it does not

terminate fatally, will, in all probability, be the exciting cause of a very grave and even pernicious anemia.

It is certainly true that many simple ulcers will heal spontaneously, sooner or later, with no greater danger than the injurious effects and damage to the structures from the scars, which in turn may occasion chronic invalidism on account of the severe interference with the function of the organ. It can not be denied that ulceration when once established follows such a peculiar course that it is impossible to form a conclusion at any period in its progress regarding just what course it will pursue, or whether, when once healed, there will be a recurrence or not. These lesions, being so dissimilar and peculiar in their behavior and presenting, as they do, such varied and irregular symptomatology, it is absolutely useless to attempt to prescribe anything like a regular clinical course for them.

A study of the symptom-complex in an individual case will usually lead the way to a more or less definite diagnosis, however. The symptoms vary according to the size, depth, and situation of the ulcer and the presence of hemorrhage, perigastritis or other complications.

Pain, tenderness, hemorrhage and vomiting, taken together in order named, are the cardinal signs that we have mainly to rely upon in making a diagnosis. No single one of these is to be entirely depended upon, however, and all may be absent in uncomplicated ulcer, especially where the ulcer is of the duodenum. Pain in the majority of cases will at once be of valuable assistance, especially when taken in connection with other symptoms. This symptom is frequently very misleading, however, owing to the fact that it may be reflected and thus imitate pain produced by lesions in neighboring organs. For instance, it is sometimes reflected to the shoulder and may thus be mistaken for disease affecting the gall-passages. The time the pain occurs, its character, severity and constancy, in connection with its location, makes it a more valuable aid to diagnosis. Usually in gastric ulcer it occurs directly after taking food and is usually described by the patient as of a boring or gnawing nature. It is not very severe, lasts for several hours, sometimes until the stomach is emptied by vomiting or through the natural course of digestion. It is usually felt a little to the left of the xiphoid cartilage, and sometimes penetrates into the back; some patients describe it as a burning pain in the left hypochondrium.

If the ulcer is situated in the pyloric region or in the duodenum the pain is most likely to come on several hours after the meal, is of a more intense and colicky nature, and is not likely to persist as long as when the condition is due to gastric ulcer. The pain is frequently absent in duodenal ulcer, however, and may thus deceive the physician even when he has observed other prominent symptoms of this disorder. It is reflected over the entire abdomen sometimes, and even certain parts of the thorax may be involved, much the same as pain occasioned by gall-stone disease. It is usually felt slightly to the right of the median line, nevertheless.

Tenderness is a valuable sign in connection with other symptoms, but, like pain, may deceive. It is usually felt most distinctly over the exact seat of the trouble; in the epigastric or dorsal region, if stomach; in right hypochondriac and iliac regions, if the duodenum is involved. Hemorrhage is also a most significant and more certain symptom. Its absence does not disprove the presence of ulcer, however; neither does its presence, although almost pathognomonic, form conclusive evidence in favor of ulcer, owing to the fact that statistics have shown that in 50 per cent. of cases hemorrhage was absent, and there are certain other conditions, which will be spoken of later, which may produce it in these organs. The amount and character of the blood, and when and how discharged, is of importance in forming diagnostic conclusions, however. Mikulicz says "Hemorrhage is the only positive symptom we have of gastric-ulcer and this is frequently wanting." The same author is quoted again as saying that "Hemorrhage is not an absolute sign of gastric-ulcer, since it may occur in portal congestion or thrombosis of portal vein." He also speaks of the hemorrhage of hemophilia, hysteria and carcinoma. Leube says hemorrhage was present in 46 per cent. of his cases of gastric-ulcer.

Blood occurs occasionally, according to one observer, in the vomit of duodenal ulcer, also, and it is a very conspicuous symptom when found in the stools; taking everything into consideration, it is probably the most reliable symptom we have of duodenal ulcer. The blood is usually dark and of a tarry nature when found in the ejecta, but it may appear in the fresh state. If hemorrhage does appear from the duodenum it is as a rule very severe; and unfortunately is many times the first symptom observed. It being frequently of itself the cause of death, must be looked upon as a most alarming complication, especially if profuse and showing symptoms such as collapse.

Vomiting frequently occurs in both conditions, and is of moderate value in diagnosing ulcer in these regions, when sufficient evidence has been produced from observation of other symptoms. It is, like some of the other symptoms mentioned, of very little assistance to the diagnostician when taken singly, however, as it may occur in so many pathological conditions, and especially where intestinal disorders which are in no way related to ulcer in these regions is concerned. It is frequently followed by relief from pain when ulcer of the stomach is the offending lesion, and to a degree gives relief in duodenal ulcer, as it relieves the stomach of the cause of pain, which is food irritants and hyperacidity.

The diagnostic value of finding an excess of hydrochloric acid in the stomach contents is not to be ignored, as a large per cent.—90 per cent., according to Hemiter—shows this condition. Cases are reported, however, where, with all other cardinal symptoms present, it proved to be absent. Hemiter explains this as probably due to the exhaustion of the gastric glands. Douglas looks upon it as a valuable and reliable aid to diagnosis, and gives as a probable reason why it has not received a more "important rank in the eyes of clinicians, is, because of the rather

tedious test required for its detection and quantitative analysis." In connection with other symptoms, it is unquestionably the most valuable aid we possess in arriving at conclusions regarding the diseases under discussion in this paper, especially with reference to the stomach proper.

The diagnosis of cancer of these regions is probably less complicated and difficult than ulcer, especially when fairly well advanced; it is not difficult to diagnose when the disease has arrived at a stage where it is thoroughly established. Unfortunately the attention of the medical attendant is usually directed to it only after it has advanced so far that little or no encouragement can be given to the sufferer in the way of offering surgery as a means of relief or cure. Early cancer, and by this I mean cancer of its most incipient stage, is, as all will admit, very difficult to differentiate from other diseases of the stomach and its lower extremity; the early symptoms are nothing more than those occasioned by digestive disturbances, or what is sometimes termed catarrh of the mucous membranes of these organs, but ere long, depending upon the character of the growth and its situation, the loss of appetite, peculiar color and rapid emaciation even attract the attention of the patient himself to a more serious condition. Not until this state of affairs arises does the patient usually seek medical aid, and, unfortunately, too frequently at even this stage it is already too late to promise surgical relief. As suggested above, after a cancerous process is well established the symptoms are quite typical, and the diagnosis is not difficult.

*The etiology of malignant disease in these regions is even more obscure than ulcer, and the only reasonable explanation that can be given—and this only in certain cases—is that occasionally it has its origin in the scar-tissue occasioned by old ulceration in these organs or their neighbors. Traumatism is given as a cause, and many cases have been reported where injuries have appeared to have been the original cause, but sufficient evidence has not yet been produced to substantiate this as a factor in etiology. Heredity and a bacteriological source, in turn, have been accused as accounting for its origin.

Its frequency, being the cause of death in 2 per cent. of all cases, and composing from 35 to 40 per cent. of all cases of cancer, being exceeded in frequency only by carcinoma of uterine, should cause a strong suspicion of its presence when considering any disease of the stomach, especially, no matter how benign the malady may at first appear.

Like in ulcer, this disease will vary according to the situation of the lesion and the length of time it has existed. If in the body of the stomach proper or at a situation where it does not obstruct either orifice, the patient's nutrition will only be gradually affected as the result of dyspepsia, and finally the absorption of toxins and septic products, and will therefore be slow in asserting itself. On the other hand, if either orifice is affected by it, it will be rather early in announcing itself on account of the great emaciation and other evidences of interference with nutrition. When the cardia, pylorus or caliber of duodenum are affected the characteristic cachexia soon manifests itself and the patient suffers from great anemia, the skin becomes dry and wrinkled and presents a yellow-



JONATHAN LEAMING WIGGINS, M.D.

PRESIDENT ILLINOIS STATE MEDICAL SOCIETY, 1909-10

ish gray appearance, the mucous membranes become pale and the sclera usually appear white and glistening; the tongue in most instances gives no characteristic sign of this disease. Soon edema, especially of feet and legs, appears also. Vomiting may be present, but is not a frequent symptom and depends to a great extent upon the situation of the growth, it being most likely to occur if either orifice is severely involved. If it occurs it may show the characteristic "coffee ground" appearance and the material vomited will be of a very sour nature. Some competent authorities claim that small hemorrhages are the rule, but this symptom may escape the notice of the patient, or even the physician, on account of the small quantity or the changed condition of the blood. Microscopical examinations of the contents will frequently show the presence of a small amount of red blood corpuscles, however.

Pain is rarely ever complained of in cancer of the stomach, especially of a severe nature, and it is not likely to be present to any great degree, unless the tumor grows to such an extent as to cause pressure or when the nerve structures are exposed by ulceration. Pain is more common in cancer of the duodenum, especially if it has involved the bile apparatus or produced very pronounced obstruction. The most significant symptom of cancer in these regions is the ability to definitely palpate a tumor. A well defined tumor in the presence of the above symptoms is almost *prima facie* evidence of cancer, although tumor may be of a benign form or occasioned by old ulceration or masses of adhesions. Unfortunately, however, it is rarely demonstrated until the disease has already passed far beyond the operative stage; occasionally, however, it is the first sign noticed by the patient and can be definitely felt by the physician, especially if located at pylorus or in the anterior wall of the stomach, even in an earlier period of the disease. It is claimed that tumor can be felt in only about 40 per cent. of all cases at any stage, however.

In malignant diseases of these organs a chemical and microscopical examination of the stomach contents is of inestimable value, as the findings thus obtained are rather certain. Boas says that in persons suffering from non-malignant disease of the stomach lactic acid is never found, except in very rare instances, and then probably its origin is in the food; and in carcinoma of the stomach we find with very few exceptions its production in considerable quantity.

The absence of hydrochloric acid is universally admitted to be of great diagnostic value, except in those cases where the lesion has arisen from ulcer. These two valuable findings, together with the knowledge obtained by microscopical examinations—for instance, the presence of the Oppler-Boas bacillus, red blood cells, epithelium, and probably some remains of the growth itself—place the diagnosis, when coupled with other symptoms, almost beyond doubt.

The information to be had from blood examinations is not of great value, especially in the early stages. Later, when there is great cachexia and metastasis has already taken place, a pronounced leukocytosis will

be present, and nucleated red-blood corpuscles and other evidences of secondary anemia will be in evidence, as in other forms of cancer.

Sarcoma of the stomach and duodenum is very rare and its symptoms are so similar to carcinoma in these regions that it is hardly necessary to consider it separately. It usually appears at pylorus, if involving the stomach, and at or near the bile papilla, if the duodenum is involved. It may also involve the entire walls of either organ and is usually rapid in its progress, soon producing metastasis and early death. It is said that in some cases it has occasioned no symptoms whatever which are referable to these organs. Carcinoma and sarcoma of duodenum are much the same in their action. About 1 per cent. of malignant disease of intestines affects this organ; primary involvement is rather rare, but it is quite commonly involved in cancerous disease affecting the surrounding organs. Rarely the disease spreads to its mucous membrane from the pyloric orifice and quite commonly cancer of the bile ducts and pancreas graft upon it a similar disease.

It is claimed by some teachers that it is not possible to give any one symptom or series of symptoms that is positive of malignant disease of this organ. Whittier says that "an autopsy is needed before confirmation." When the cancer is situated above the bile ducts the symptoms are much the same as in pyloric cancer, and if the bile ducts are involved, causing obstruction, the diagnosis is necessarily much more elementary. The tumor is usually so deeply seated that it is entirely concealed and hence does not admit of palpation. Stomach analysis is of no particular advantage, except to exclude gastric diseases, and possibly to determine the presence of bile and pancreatic fluid if the growth is below the papilla. Examination of the stools is of diagnostic value only to determine the presence or absence of blood. Jaundice is always present in a pronounced degree and increases gradually if the growth is situated at or encroaches upon the papilla.

Summing up the knowledge obtained through history, symptomatology and the various means of physical diagnosis, we must admit that none of them are absolutely reliable in all cases, and in all early cases of both ulcer and malignant diseases affecting these regions their value is only of relative assistance; we are justified, therefore, in concluding that there is only one reliable means that we possess whereby we can absolutely know the conditions existing in this as in other hidden cavities and that is through the employment of exploratory incision. This alone gives us relatively positive knowledge regarding the exact pathological lesion, and being, as it is, the first step in surgical operations for the relief of these diseases, should be employed in every instance where the diagnosis can not be clearly made otherwise and where surgical interference appears to be indicated. This brings us to the consideration of the operative treatment for these diseases, now in vogue.

Necessarily the uncertain knowledge to be obtained at an examination in the early stage of either of the above diseases makes the subject more or less bewildering, and here, like in other serious lesions of the abdomen, only an early diagnosis can be of any great value if we expect

to make a good showing in our operative work. Unfortunately these patients, like in other serious surgical conditions, rarely seek surgical or even medical advice, for that matter, until the favorable time has flitted away.

The indications for surgical interference in gastric ulcer depend upon the character and chronicity of the disease. If appropriate medical measures have been given a fair trial and the disease remains intractable and indicates the probability of the patient becoming an invalid from the effects of pain and insufficient nourishment, even though the disease shows no alarming symptoms, surgical interference is unquestionably the only rational measure and should be resorted to before the patient's strength is too far reduced to stand such a procedure. We must grant that many patients suffer for years, however, without being greatly debilitated by this disease; these cases do not demand surgical interference, of course, unless a severe complication arises. The kind of surgical procedure to be adopted depends upon the condition demanding it.

If hemorrhage of an alarming degree exists, or if it persists in amounts sufficient to cause anemia, operation is clearly indicated, and should be performed without delay. If the bleeding is of moderate degree, gastro-enterostomy will usually suffice for its relief, but if of alarming proportions an incision should be freely made in the anterior wall for exploration, the bleeding point sought for and controlled by ligaturing en masse. The uncomplicated ulcer met with most frequently which is not amenable to medical cure is usually benefited by gastro-jejunostomy. It can not always be relied upon as a positive cure, however. The per cent. of cures as a result of this procedure are sufficient in number to justify its employment in most cases, however. Competent authorities show a mortality of less than 10 per cent. after this operation, and this includes even the desperate cases. The death rate has been given as low as 5 per cent. in hands of some surgeons. When the procedure is not too hazardous on account of complications the ulcerated part or cicatrized area should be excised, and this operation supplemented by gastro-enterostomy.

Perforating gastric-ulcer is preeminently a grave condition that demands immediate laparotomy. With this condition present the diagnosis is comparatively simple and no doubt need be entertained regarding the necessity for surgical interference. It is always warranted, even after peritonitis has once begun, unless it has been delayed until the patient is already *in extremis* and evinces not the faintest hope of recovery.

Although the situation of gastric ulcer is usually in the posterior wall, strange to say, in about four-fifths of the cases perforation occurs in the anterior wall. This is a lucky circumstance, even granting that peritonitis is more likely to occur, owing to the fact that plastic adhesions are less likely to form (for reasons already assigned), as in this situation a more favorable opportunity is afforded for expeditious and adequate treatment, and the diagnosis is also less confusing. As soon as possible after the diagnosis is decided upon abdominal section should be made, and the perforation sought for. This will usually be quite easy

to find, as the ulcer will usually be the first thing observed as the anterior wall comes into view after opening peritoneum. If plastic exudate has had time to form on site of perforation, or if contents is seen especially, these signs will serve as a guide to the real situation of the lesion. When found, the opening should be temporarily occluded and peritoneum hurriedly cleansed of all floating foreign substance. If practicable the ulcer should be then excised and thoroughly sutured by whatever method that appears to be most suitable and expeditious. If the condition of the patient will not admit of this procedure, or if the ulcer is small, excision can be dispensed with, a simple continuous suture being used, after inverting the edges—this should be reinforced by one or two more sutures through the external coats. A thorough toilet of peritoneum should now be made with dry sponging; or, if there has been considerable leakage, an effort should be made to cleanse all of the peritoneal pouches in the abdominal cavity, in which the foreign substance might have found access. Some surgeons prefer to irrigate the cavity with plain sterile or salt solution, but, unless the leakage has been very abundant, ordinary mopping with sponges wrung out in salt solution is probably the safest procedure. Ample drainage should now be provided and the wound closed as usual. If the patient is very profoundly shocked when the perforation occurs, especially if the symptoms do not point to severe hemorrhage as a complication, the time of operation may be delayed for a few hours and the time occupied in stimulating and strengthening measures, as well as to make suitable external preparation. If hemorrhage, especially of an alarming degree, can not be positively excluded, as it usually can not, it is certainly unsafe to delay operation, however, and it is a question whether it is ever good surgery.

What has already been said regarding operative treatment for perforation of the stomach holds good also for perforation of the duodenum, except that in this condition in last named organ shock and hemorrhage are usually more profound and operative delay even more dangerous. Ulceration of this organ, as already remarked, is most frequently in what Mayo calls the "vestibule." This ulceration is most often in a contrary position to gastric ulcer; namely, on anterior wall. Perforation occurs in either place with about equal frequency, however. The situation of the perforation of this organ is more difficult to detect on account of the position of the organ, but usually the same appearances that were mentioned in speaking of gastric perforation, although more difficult to trace, will be an index to the location of the opening here. If it is possible to determine positively beforehand, an incision suitable for better observing this organ can be made, and this will in most instances be through the right rectus. If the perforation has occurred in the posterior wall and a retroperitoneal abscess has formed, an incision through right lumbar region may be made, or one through right side, passing behind the ascending colon. Drainage in such cases should, like in posterior stomach perforations, be placed through one of these openings. Benign stenosis of stomach, pylorus or duodenum is another condition that may urgently call for surgical treatment. If such is present the

kind of surgical operation required for its relief will depend upon its situation and nature. It may be occasioned in several ways; it may take place, as it most frequently does, from progressive cicatricial contraction caused by old continuous ulceration; from an infiltration process involving the walls following in the wake of recent ulceration; from spasmodic contraction of the muscles, if the ulcer is new and in close proximity to the pylorus; or, as it occasionally happens, as the result of extensive adhesions, or from growth of neighboring organs which produce pressure.

If stenosis has occurred as the result of cicatricial contractions, and has produced what is known as hour-glass contraction of the stomach, gastro-anastomosis, or gastroplasty will probably be the most suitable operations to be recommended; if the stenosis is of the pylorus and comes about from same cause or from any of the causes mentioned above, pyloro-plasty or gastro-enterostomy are the operations to be chosen. If adhesions or narrowing caused from pressure are accountable for the condition, these can be dealt with according to the extent of the adhesions or the kind of pressure caused from tumor, etc., by whatever means that appears to be most appropriate at the time of the operation.

The surgical treatment of ulcer and its consequences involving the duodenum is to be conducted upon the same principle as that of the stomach. Simple ulcers without complications on account of their obscurity as to diagnosis are very seldom located by means of surgical operation done especially for this condition on account of the difficulty of diagnosis. If the diagnosis can be made the operation is demanded more positively than in a like condition of the stomach, as spontaneous healing rarely ever occurs and dangerous complications are most frequently occasioned by it. Gastro-enterostomy usually suffices for its relief, but, in addition to it, closure of the pylorus is in most instances thought to be advisable in order to prevent the gastric contents from passing into the duodenum, and by so doing continuing to keep up the irritation and corrosion than were the original sources of the trouble.

Stenosis of this organ is best treated by plastic operation, combined with gastro-enterostomy, or by gastro-enterostomy alone. If the stenosis is pronounced and situated below the mouths of the bile and pancreatic ducts, simple gastro-enterostomy alone is not sufficient, as these secretions will cause trouble by being regurgitated into the stomach.

The duodenum can usually be approached and treated through the anterior wall by an excision similar to that required for cholecystotomy, but occasionally, when perforation has occurred in the posterior wall, a right lumbar incision may be required, as already referred to.

The *mōdus operandi* of surgery for the treatment of cancer of the stomach or duodenum will depend more especially, at least as far as the growth is concerned, upon the position, extent and degree of involvement of neighboring structures and glandular system, as well as the amount of metastasis in other organs.

The size of the growth does not of itself decide the question as to advisability of removal, as much as the location and extent of infiltration

of the surrounding structures, as the entire stomach and a good portion of the duodenum can be excised if necessary, but radical operation is useless if lymph glands and organs adjacent are involved. Cancer involving the cardia is also inoperable for obvious reasons, in which case a gastrostomy can be performed, merely for the purpose of prolonging life through the introduction of nourishment into the stomach. We have the choice between radical and conservative operation, and the question of which one is to be selected can not be decided until the abdomen is opened. Not infrequently small movable tumors will give the impression that complete removal is quite possible, but disappointment follows when upon opening the abdomen it is found that the lymph glands are greatly implicated, or the peritoneum, transverse colon, mesentery or liver, is covered with cancerous nodules; such complications make radical operation entirely out of the question, and in such cases the surgeon must resort to either gastro-enterostomy or gastrostomy, merely for palliative purposes; this eliminates to a degree the disagreeable gastric symptoms in some cases, but even this may give relief only for a short period, and at times not at all. When it is possible, therefore, it is advisable to do a resection, especially if the growth is at the pylorus, as life is prolonged longer and the patient is made more comfortable, even if there has been such serious extension of the disease as to make the possibility of cure out of the question.

In view of the fact that a limited number of so-called cures have been accomplished from resection of cancerous growths in these organs, the operation should always be undertaken if a possibility of prolonging life is at all feasible. The question of radical operation will depend also upon the general condition of the patient; whether or not other serious diseases, such as tuberculosis, nephritis, diabetes and similar conditions, contraindicate its performance; the degree of anemia and cachexia must also be considered when operation is under advisement. Although Mikulicz says he has had some good results even when cachexia was pronounced.

Sufficient evidence has not yet been produced to prove that total extirpation of the stomach offers advantages proportionately large over less serious procedures to make it a warrantable operation, even admitting that there have been a limited number of brilliant successes attained by it; there are instances, however, where if such a thing is possible, the entire stomach is involved in the growth, without involvement of neighboring structures, where its employment might be justifiable; pylorectomy or partial gastrectomy, in suitable cases, offers advantages, however, that can not be denied, and can do much towards alleviating the suffering and prolonging of life.

The details of the surgical technic of the several operations mentioned in a paper of this character need not occupy the space required for their description, as such would make the subject too exhaustive. A few special points which need emphasis, and on which success in this class of operations depends will probably be appropriate, however. These essential points in the technic are as follows: First the stomach should

be washed out for several days before and again shortly before the operation with sterile solution, and thoroughly emptied; bowels should be emptied a few hours before operation with high enema. Only liquid foods should be permitted for two days before the operation when the patient is not too weak to stand it. Do not use too much strychnia and other stimulants before, but plenty after the operation. A hyperdermic of a small dose of morphin is frequently beneficial just before the operation, but opiates are to be condemned after the operation for fear of intestinal paresis, and the danger of checking the secretions. Keep the patient warm and dry, and otherwise try to prevent unnecessary shock and exposure.

The incision in the abdominal wall should be of proper length—large enough to admit of ready and convenient access, but not so large as to expose intestines and other organs to unnecessary dangers. It should be made directly over the region where the disease supposed to be calling for operation is expected to be situated. Peritoneum should be well protected with suitable pads, and these should be frequently changed.

Especial care should be taken in the selection of suitable suturing materials, needles and clamps, as the success of the operation greatly depends on these; the Murphy button is probably most suitable when haste is required to successfully complete the operation, when operations, in which its employment is appropriate, are being performed. Particular pains should be taken to see that the tension on the various sutures is not too great, and these should be placed so as to insure a firm hold on the tissues. When the walls are incised, sufficient tissue should be included between the clamps for convenience of suturing, and the edges of the stumps should be grasped at once with hemostatic forceps so as to prevent the walls of the viscera from slipping through the clamp.

Make sure of finding the jejunum as high up as possible and be certain that it is the jejunum when gastrojejunostomy is being performed: this is frequently very confusing even to experienced surgeons, and, if a mistake is made, very serious results will follow what might have been a successful operation. Consume as little time as necessary for good work. Place sufficient and suitably located drainage when it is indicated. Do not waste too much time in making peritoneal toilet and in closing the abdominal wound, as life does not depend so much upon these, especially the latter. Allow no unnecessary hemorrhage during the operation, as the patient will require all of his blood to sustain life during the critical hours immediately following the operation.

Elevate the chest of the patient when put to bed, and prop him up with back-rest in a few days, especially if old. Don't permit any unnecessary muscular effort on the part of the patient. Give nothing whatever by mouth for the first four days at least, and then only small quantities of plain sterile, or albumen-water, at not too frequent intervals. Depend on rectal feeding entirely for at least eight or ten days, with plenty of normal salt solution and brandy. After the end of the first week liquid nourishment, with the exception of milk (as milk frequently coagulates and thus causes trouble) can be cautiously given by mouth.

Cathartics should not be given, and solid foods not allowed for from two to three weeks, depending on the character of the operation.

Such is, in a general way, some of the items that have suggested themselves as extremely important when abdominal operations, especially of the nature treated of in this paper, are being performed; and, as the life of the patient who is suffering from one of these desperate diseases often depends upon the careful observance of even the minutest particular, too great attention can not be paid to the same. Unless the most careful detail in the selection of these cases and in the diagnosis and surgical technic is observed gratifying results need not be expected from this class of surgical operations.

Rooms 10 and 11 Morrison Block.

RUPTURE OF THE UTERUS DURING LABOR; OPERATION; RECOVERY.

EDWARD L. MOORHEAD, A.M., M.D.

CHICAGO.

Rupture of the uterus during labor is a very serious accident. Its production, as explained by Bandl, is generally accepted. In normal labor the first stage is regarded as ending when the os uteri is so dilated that it offers no resistance to the presenting part, and this, therefore, under the influence of uterine contractions, descends and is expelled from the uterus, but with descent of the head ascent of the os uteri occurs. The activity of the uterus is exerted during that stage in a retraction of the os, drawing it upward over the presenting part. But, if there be a marked disproportion between the presenting part and the canal it must pass through, as, for example, that caused by a shoulder presentation, or by an hydrocephalic head, or a narrow pelvis, advance is impossible. In the meantime, the uterine force, struggling against an invincible obstacle, the effort at retraction of the cervix still continues and the tissues of the cervix and of the lower portion of the body of the uterus are greatly stretched and attenuated. In consequence of the right obliquity of the uterus (this being the case in a great majority of the cases) the retraction is as a rule greater upon the left side than the right. This explanation makes clear the reason for these ruptures always involving the cervical portion and thence extending upward to the contraction ring and downward into the cul-de-sac, and why they are in only rare instances directly longitudinal but have an oblique or transverse course. Their greater frequency on the left side is not to be attributed to the greater frequency of the pressure of the head upon that side, but to the usually occurring right obliquity of the uterus and to the greater retraction of the left uterine wall.

The vagina is not made tense by this retraction of the cervix, owing to the antagonistic action of the uterine ligaments, especially the round ligaments, to the retraction of the cervix.

Frequency.—The frequency of the occurrence of rupture of the uterus varies, according to the statistics of Collins, one in 482 labors; Bandl, one in 1,200; Garrigues, one in 3,000. These statistics are no doubt in error, as many cases have not been recognized at the time, death being attributed to other causes where post-mortem examinations were not made and many cases not reported at all. The accident, while by no means frequent, probably occurs more often than statistics would indicate.

Causes.—Aside from those cases produced by obstetric intervention, manual or instrumental, the greater number of cases result from undue resistance to the force of uterine contractions. The normal effect of that force is the expulsion of the child, and any invincible obstacle present preventing that expulsion, uterine contractions, strong and continued, uterine rupture results. Rupture may occur as a result of the administration of large doses of ergot during the first stage of labor, producing vigorous contractions of the fundus and body, against the normal resistance of an only partially dilated os. Pathological changes in the os-uteri and narrowing of the vulvo-vaginal canal by cicatrices may lead to rupture of the uterus. Pelvic contractions is an important cause. Increased size of the fetus, as from abdominal tumors, ascites and hydrocephalus, may cause rupture of the uterus. The accident has occurred more frequently in multipara than primipara, probably due to repeated pregnancies, leading to a thinning and weakening of the uterine walls. Shoulder presentations occurring more frequently in multipara is another cause for rupture in multipara being more frequent.

Degree.—The rupture may be complete or incomplete, only involving the muscular wall, the peritoneal coat not being torn. In the latter case there would not be any hemorrhage into the abdominal cavity, although there may not be extensive hemorrhage beneath the peritoneum. Uterine rupture is often extensive, sometimes permitting the escape of the fetus or part of it into the abdominal cavity. Uterine rupture may be complicated by lacerations of the vagina, bladder or rectum.

Symptoms.—In most instances the uterine contractions cease and, upon vaginal examination, the presenting part will be found to have receded. There may be severe abdominal pain, and the contour of the abdomen may be changed, owing to the fetus having entered wholly or in part into the abdominal cavity. Hemorrhage may be external or internal, or both. Fetal movements as a rule cease and the fetal heart lines are arrested. The pulse becomes small and rapid, respiration shallow, rapid and difficult, and the patient may present the picture of profound shock. By vaginal examination the rent in the uterus can be felt, and also the position the fetus retains relatively to the uterus.

Prognosis.—Rupture of the uterus is a most serious accident occurring during labor. The child almost invariably dies at once. The mother is in immediate danger from shock and hemorrhage, and later from results of sepsis.

Treatment.—After rupture of the uterus has occurred delivery must be made as soon as possible, the method employed depending upon the position of the fetus and the special obstacle to labor, which has been the prime factor in the production of the rupture. If the head is presenting and can be delivered by forceps it should be done. Podalic version is contraindicated, as by this method the size of the rupture would be increased. Where the fetus has passed partly or entirely into the abdominal cavity, or where there is an obstruction to the natural outlet, narrowing it to such a degree that delivery is impossible, then abdominal section is indicated.

As to the removal of the uterus after abdominal section one must be guided by the extent and location of the rupture, the contractility of the uterus, the condition of the patient and the subsequent dangers of hemorrhage and sepsis.

The following case is illustrative of rupture of both body and cervix during labor. The history, furnished by Dr. Novak, who referred the case to me for operation, is as follows:

Mrs. M., aged 37 years. Mother of four children. Oldest 14 years; youngest 7 years old. Had a premature birth (seven months) three years ago. General health has always been good. Menstrual history normal except that for the past two years has been somewhat painful. She had an extensive laceration of left side of cervix at one of her previous labors, for which she had received local treatment. Patient was taken sick about 4 a. m., Aug. 18, 1907. She was at full term, and had been enjoying her usual good health. The midwife in attendance said that the labor progressed until 2 p. m., when the membranes ruptured. The os was fully dilated at this time. Position L. O. A. There was persistent hemorrhage during progress of labor and the head did not advance any from this time until 8 p. m., when Dr. Novak was called by the midwife, as she had become alarmed at the hemorrhage and the condition of the patient, the pains growing less and no progress being made. The doctor was unable to hear the fetal heart and suspecting that something was unusual applied forceps and without much force delivered the head. As the shoulder came down, the doctor says, something gave way. The delivery was rapidly completed. The placenta came away easily and profuse hemorrhage followed. Upon examination per vagina the hand passed directly through the uterus into the abdominal cavity. The uterus and vagina were immediately packed with gauze and cotton, but the hemorrhage came through the packing. More gauze was secured and the uterus and vagina were repacked, and the patient removed to the hospital. I first saw the patient in the hospital about 10 p. m. Her condition at that time was poor. She was very pale. Pulse small and rapid. Skin cold. Mental condition good. Hemorrhage was coming through the packing. Immediate preparation was made to perform abdominal section and meet any condition that might be found. When we were ready the packing was removed, and upon examination the fingers of the examining hand passed through the laceration of the uterus on the left side into the abdominal cavity. The cervix was completely lacerated on this side; the laceration then extending upwards and inwards across the body of the uterus. The abdomen was immediately opened. A large amount of free blood was found, active hemorrhage going on. The left broad ligament had a large amount of blood beneath it. There was a ragged laceration of the uterus extending upwards into and through the broad ligament and then transversely across the body of the uterus. Under these conditions there seemed to me but one line of procedure to follow in this case and that was the complete removal of the uterus, which I did.

The factors which had to be considered in this case were: First, the control of the hemorrhage; second, shock; third, sepsis, and, fourth, time. There is no doubt in my mind that if an attempt had been made in this case to save the uterus, owing to the extent and character of the rupture, hemorrhage, either immediate or secondary, would have given us great trouble. Owing to the prolonged labor, the many examinations, the conditions under which the packing, of necessity, had to be done, all, no doubt, without the proper aseptic preparations for the conduct of the labor, were sufficient, to my mind, in order to guard against sepsis, to make the operation as clean and perfect as possible.

Shock was to be considered, as the patient had already undergone a protracted and instrumental labor, with the loss of a great quantity of blood. Some might say the shock would be less in an operation in which an attempt to repair the organ would be made, but in this case I do not agree, as time was also to be considered. An attempt at repair would have meant a prolonged operation, owing to the extent of the laceration and in the end the result would have been unsatisfactory.

During the operation (which required thirty minutes) and immediately afterwards the patient was given normal salt solution subcutaneously and also per rectum (continuous drop method). She reacted quite nicely from the operation and made an uneventful recovery. There was no nausea, and the temperature did not go above 100 F.

For the first two days there was some tympanites, due, no doubt, to atony of the bowels following the labor, after which the bowels moved normally. The patient was out of bed on the sixteenth day and left the hospital on the twenty-sixth day in good condition.

103 State Street.

BRAIN SURGERY.*

CARL WAGNER, M.D.

Surgeon to Columbus and St. Joseph Hospitals.

CHICAGO, ILLINOIS.

Specimens in museums prove that centuries ago successful trephining had been practiced with very imperfect instruments, and that the patients lived for quite a time afterward, as the scar formation at the bone tissues proves. But as late as 1848 Diffenbach disapproved of trephining to such an extent that he used this strong expression in his great work on surgery: "Trephining impresses me to be a sure means of killing the patient in most cases." In 1897, at the Moscow Medical Congress, the great past-master in brain surgery, von Bergmann, astonished the enthusiasts of brain surgery by taking the very discouraging stand that surgery of tumors of the brain would be limited to the region of the central convolutions and tumors of the posterior cranial fossa should never be touched at all. Then, as late as 1899, he made the third edition of his renowned text-book the promulgator of this

* Read before the North Side Branch of the Chicago Medical Society.

teaching. Hitzig and Seifert warned against operations in the posterior cranial fossa, in spite of Monakow's proofs that acoustic tumors can be diagnosed; that they are mostly benign and may safely be removed in quite a number of cases. Horsley, Krause, Borchard, Keen, Cushing and many others reported very encouraging results regarding these tumors, as well as those of the cerebellum.

It is remarkable that brain surgery in general, and in particular that of the posterior cranial fossa and the cerebellum, had to fall back in the great race of development of surgery. Wernicke formulated, as early as 1881, in his text-book on diseases of the brain, indications for surgical interference in this kind of cases, and soon after operated successfully with Hahn on a broken-down tubercle of the occipital lobe.

This state of retardation can only be explained by the fact that the diagnosis had until recently remained very vague and unreliable, which naturally rendered localization of the pathological conditions very doubtful. The imperfect technic and the poor methods in combination with the complicated physiological factors, regarding intracranial pressure, respiration, pulse, heart-beat, caused many even experienced general surgeons to refrain from any more serious meddling with the brain.

The brain has always been the most serious field for the surgeon to enter, and seems to continue to cling to this reputation. Articles on brain surgery have appeared very rarely in the literature until Horsley, Cushing, von Bergmann and other investigators in England, America and Germany, like Bennett, Godlee, Macewen, Krause, Kocher, Borchard, Ballance, in cooperation with neurologists like Hitzig, Oppenheim, Bruns, Knapp and others, outlined more reliable principles for the diagnosis, indications and methods of operation, which made it possible for others to follow. Thus has the last decade enriched our literature with abundant reports of successful cases of surgery on all parts of the brain, even of such regions which only a short time ago seemed to be absolutely out of the question for surgical interference.

The interpretation, though, of symptoms of intracranial lesions still encountered difficulties, and, in spite of the advances and new methods of diagnosis, a great number of cases must remain doubtful. Lesions may exist for a long period without symptoms and suddenly cause death by coma without any warning. In some well-diagnosed cases nothing can be found macroscopically, but microscopically the clinical diagnosis can be verified, as in the case of Sänger, where the microscope proved the metastasis of a malignant growth in some other part of the body. Nonne reports a case, which came to autopsy on account of injury to the longitudinal sinus. In this case no tumor could be observed with the naked eye, but the microscope showed an infiltrating glioma, which substantiated the clinical diagnosis. Abscess of the brain may be in a silent state for quite a period, especially of less virulent ones, as long as they are encapsulated by a firm membrane. It must be remembered that many of them show very little or no temperature at all until the fatal catastrophe comes like a "thunder clap out of a clear sky."

Then, again, while a tumor may be stationary or gradually increasing in symptoms, a chronic abscess develops in the majority of cases with periodical exacerbations, with some rise of temperature. At the same time we must not forget that solitary tubercles are also characterized by irregular temperature; the same thing applies to tumors of the pons. Abscesses of the brain, in diagnostic contrast to other tumors of the brain, are always the result of infection, which we are usually able to trace. The primary seat of the infection is, as a rule, in the region of the skull, but it may be very remote. Thus cases are reported after gall-bladder empyema, actinomycosis, empyema of the pleura, and very

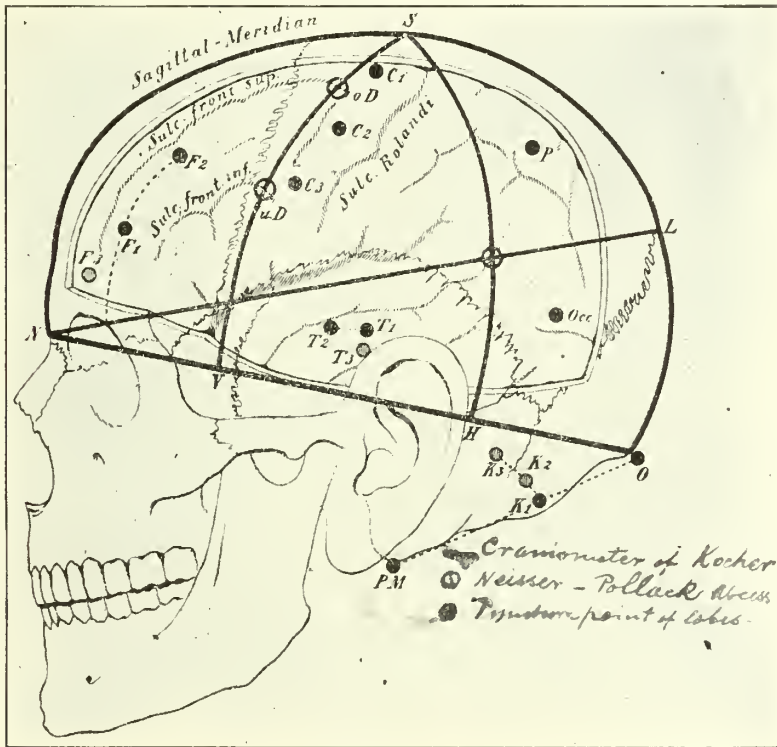


Figure 1.

frequently after bronchiectasis, gangrene of the lung, etc. Boettcher discovered pigment of the lung in a pulmonary abscess of the brain. In fact, any infection of the organism may develop metastatically into a brain abscess.

Idiopathic abscesses are very much doubted nowadays. The general symptom of abscess and tumors, like headache, vomiting, convulsions, edema of the optic nerve, may be the same, but there is one exception in abscess, which consists in the fact that the edema of the optic nerve is mostly unilateral; it may even be entirely absent, on account of the want of pressure, because an abscess develops at the expense of the brain

tissue through its destruction. With this behavior of the optic nerve in brain abscesses the toxin theory is rendered untenable.

I do not wish to enter into the many finer details of differential diagnosis of brain abscess and other lesions, because they properly belong in the domain of the neurologist, but would like to emphasize that the brain surgeon must keep abreast of the times as much as circumstances permit, with the advances in neurology, and associate himself in every case whenever possible with the neurologist, the otologist and the ophthalmologist.

TECHNIC.

For control of the hemorrhage of the scalp wound I found a single running suture encircling the field of operation very satisfactory. I do not see the necessity of inserting two sutures, one on each side of the incision, as Heidenhain advocates. I found the former applicable for operations even in the occipital region, with the addition of two or three hemostats. It also proved to be sufficient in Cushing's cross-bow incision. I have left the silk suture in the scalp from six to eight days with impunity. Of some recent date are Kreddel's metal plates, which are one centimeter broad and one-half centimeter thick, and from five to seven centimeters long, and provided with a longitudinal groove, in which the silk sutures are placed and tied after they have grasped a corresponding amount of tissue underneath. They are especially handy in operations on the forehead, where a tourniquet of Cushing would be in the way of the operator, and where Heidenhain's double suture would leave too many scars from stitch-holes. Regarding trephining of the bone, I note that hammer and chisel disappear almost entirely from the hands of the expert. Accidents have been reported from the use of the electric bur, and also from circular saws. The Doyen perforator and fraise, the Gigli saw and Dahlgren forceps, Braatz' probe, Passow's chisel, and Krause's claw-forceps constitute a very serviceable instrumentarium.

With the perforator, a canal through the bone is established, without any danger of injury to the dura; then the fraise is inserted and the opening enlarged just enough so that the Dahlgren forceps or rongeur can be safely manipulated. In osteoplastic operations three to four of such openings are set and then the dura mater loosened from the lamina vitrea, with one of the Braatz probes, after which a Gigli saw is placed in position and the bone divided in such a way that a large beveled edge results, which serves for the adjusting of the bone when it is replaced. After the three sides of the bone flaps are divided the bone is evenly and carefully raised with two or three periosteal elevators and broken over at its base. One must pay great attention during this maneuver to watching the base of the bone flap for splinters, which may form sharp-pointed spiculæ and injure the dura or its blood vessels. This can be avoided by breaking them off quickly with nipping forceps and by protecting the dura with some flat metal instrument. But before the act of breaking the bone takes place the claw-forceps of Krause

should be put in position, one on each side. They clasp the bone and the soft parts and prevent loosening or tearing off of the soft tissue from the bone flap, an accident which would result in the loss of the bone. They also serve well for manipulating the bone flap. Hemorrhage of the valveless veins of the diploe is easily controlled by blocking with Horsley's wax, ivory nails, or, more ideally, with a few strokes upon Passow's chisel held in place. Krause has controlled profuse bleeding by inserting a hook into the lumen of the diploic vein and twisting it around a few times with some pressure. Hemorrhage from underneath the bone, which sometimes seems very profuse, generally stops when the dura is allowed to return in position, or by packing the epidural space

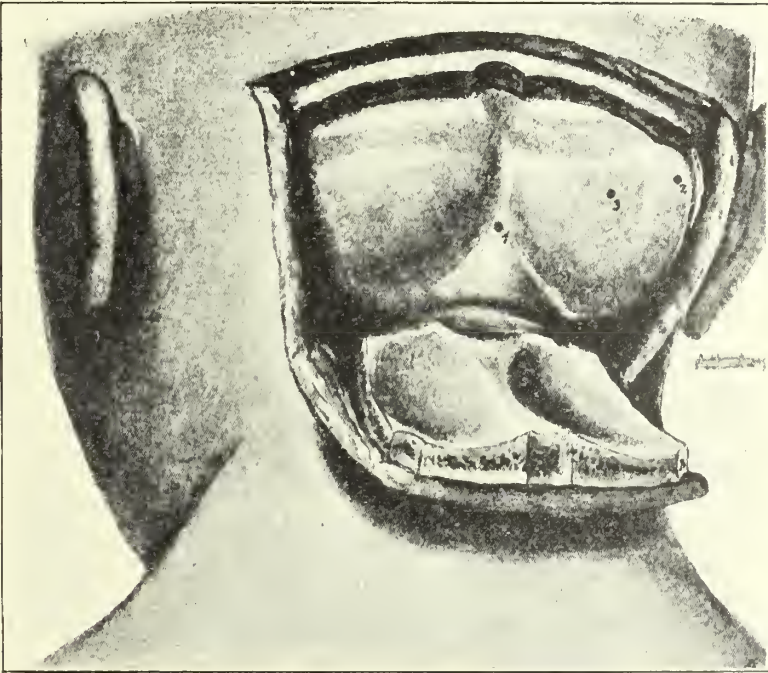


Figure 2.

with a few strips of gauze, except in instances where we are dealing with an injury of one of the meningeal arteries, which, of course, would have to be tied. Horsley controls hemorrhage with a continuous irrigation of hot bichlorid solution of 1-10,000. The larger veins of the dura, especially near the Pacchionic granulations, and those of the pia mater should be taken up with a stitch and ligated. In cases where any of the sinuses, especially the longitudinal, comes within the field of operation, this region must be attacked last, so that in case of injury the bone can be quickly removed, as all the other sides are free, and the dangerous hemorrhage placed under control. For checking hemorrhage from the sinuses we take advantage of the Revenstorf technic by picking

up the dura with a silk thread and fine needle laterally, on both sides of the sinus, and tying the thread across the sinus. In this way the sinus can be compressed very reliably. Capillary and venous hemorrhage can be greatly lessened by the administration of oxygen, according to Horsley. During this procedure, when the dark color of the blood changes to scarlet red, the hemorrhage, as a rule, ceases. The mode of opening the dura should be like that of the peritoneum, by lifting it up with a tissue forcep, then nipping it with a knife, exercising the same care in avoiding injury of the subdural tissues, especially of the pia mater, just as in the peritoneal cavity of the intestines, etc. Indeed, an injury to the vessels of the pia mater would be an unfortunate complication of the operation, as immediately a large hematoma would take place, which would make it impossible for the operator to distinguish with the eye the details of the brain surface. The shape of the flap is in respect to final closure and adaptation of the wound most practical and convenient when quadrangular in form, in the soft tissue and bone, as well as in the dura. If the operation is near the sinus we must leave quite a margin of the dura laterally from the sinus and make our incision of the flap parallel with the afferent and contributory veins of the sinus. The arachnoid demands our especial attention only when diseased; otherwise it will not be seen. It is often edematous and must be relieved from it by scarifications on the most dependent part.

The operations for different pathological conditions vary greatly. In operations for abscess we should bear in mind that the arachnoid must be especially protected against infectious material from the pus cavity. This can be accomplished by allowing quite a large margin of the dura at the bone edge, so that, picked up with forceps, it may be retracted over the edge of the bone, and then the subdural space packed with gauze strips.

For exploring a deep-seated abscess a cannula of 2 mm. in diameter is used. This must be passed into the substance of the brain, sometimes in different directions, until the abscess is located. After succeeding in this one follows up the cannula with a scalpel, while the cannula remains in position. The hemostat may also be used and its branches opened after entering the abscess cavity and pulled out, thus enlarging the exit for the escape of pus. One may insert a retractor and inspect the cavity with the eyes. It is advisable to introduce the small finger and make sure by palpation whether there are not more compartments of the same abscess, the partitions of which should be broken up. If a membrane is present, as in tubercle or chronic abscess, it must be removed; but by no means should the curette be used and the cavity scraped, as this would cause further infection of the healthy part of the adjacent brain tissue.

SOME NEWER OPERATIONS.

Of operations which are of more recent date and have come to stay are to be mentioned those for diseases of the cerebellum and of the recessus acustico cerebellaris. The progress of surgery on the cerebellum

must be heralded with the greatest of appreciation, inasmuch as this region of the brain is fruitful above all others in the development of tumors. Abscesses are also very frequent in this region. According to Heinemann, there are 188 cerebellar abscesses to 456 of the cerebrum. Thanks to the publications of Bruce, 1899; Bruns, 1900; Luciani, 1891, and Pagano, in 1902, the diagnosis and localization of cerebellar tumors assumed applicable form and the right stimulus for aggressive surgery. In regard to pontine angle tumors, we find that Oppenheim, in a treatise on the subject, describes as early as 1889 the first true picture of the complex of symptoms. Gulderarm, of Holland, was the first to remove tumors from this region in two cases, in 1892. The meth-

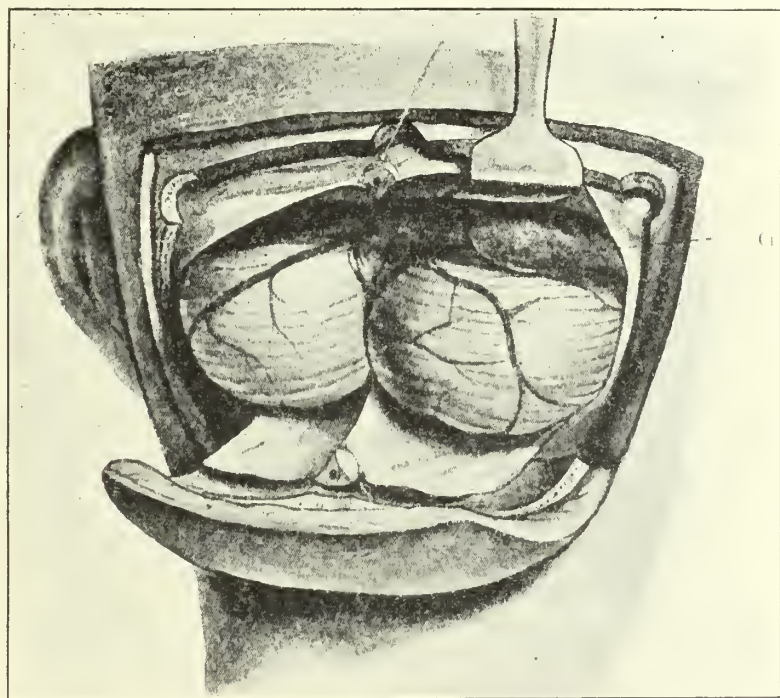


Figure 3.

ods of operations on the posterior hemisphere have been perfected mostly by Horsley, Krause and Cushing.

The operation for abscess in the cerebellum differs in size of the opening from that of tumors in that region. It is formed by a transverse incision corresponding to the line of the superior semicircular line, extending from the external occipital protuberance to the posterior border of the mastoid process. A secondary incision is carried downward along the mastoid border, but two centimeters toward the median line, in order to avoid the mastoid foramen, and a third one laterally from the crista occipitalis. The bone flap is broken across above

the foramen magnum. With a bone-cutting forcep we can now easily bring the different sinuses into view and enter the mastoid or remove the mastoid cells, according to the indications. The danger of hemorrhage of the emissary blood vessels of the mastoid is so great that many of the failures have been attributed to hemorrhage and shock which arose on account of the complications and difficulties encountered here. A study of the more detailed anatomy shows that the foramen of the mastoid through which the posterior meningeal artery enters into the vault varies a great deal in its location. Sometimes it is found in the substance of the occiput, in others it may be at a suture of the squamous part, and in others in the mastoid itself. There may be one or two, or even three, foramina. Even in the same skull varieties in the number and location on the different sides have been observed. These emissaries may reach the size of the sigmoid sinus and be even larger.

The location of the transverse sinus corresponds to the posterior third of a line which is drawn from the root of the nose to the external occipital protuberance. The sigmoid sinus is right behind the middle third of the mastoid process, and can easily be found in a line drawn from the tip of the mastoid to the occipital posterior protuberance.

In searching for tumors of the cerebellum or the petroso pontine region the opening in the skull must be larger. In multiple or large acoustic tumors the crista occipitalis must be included in the bone flaps in order to avoid pressure on the cerebellum while retracting it; the lateral incisions must be carried much further down and at the base of the skull quite far toward the front, so that the bone flap breaks across at the niveau of the foramen magnum. This act of the operation is not as dangerous as some seem to fear, because the thick atlanto-occipito membrane protects the dura, and under the dura lies the tonsil of the cerebellum and not, as had been wrongly supposed, the medulla oblongata. But there is some danger from the point of hemorrhage, inasmuch as this is the seat of the large sinus marginalis, which encircles the foramen.

In case the hemisphere can not be displaced well enough, the falx cerebri and the occipital sinus may be severed under guidance of the finger and the application of a double ligature.

In retracting the cerebellum medianward one gets into view the upper part of the posterior petrosal bone with the acoustic and facial nerve entering into the porous acoustic internus. In displacing the cerebellum medianward and upward in an oblique direction one sees plainly the three nerves, the glossopharyngeus, the pneumogastric and accessory. If we displace in an upward direction one sees the three nerves more clearly; also the whole base of the posterior cranial fossa, and especially the course of the accessory nerve coming from out the spinal canal and the lateral side of the medulla oblongata. With a displacement in a downward direction one can view the upper surface of the cerebellum.

For exposing both hemispheres of the cerebellum two lateral vertical incisions are made, about three centimeters medianward from the mas-

toid, to meet the transverse incision, which follows a line corresponding to both transverse sinuses. In order to view the vermis the falx cerebelli and the sinus occipitalis must be severed and then the tentorium retracted, after careful ligation of two or three small veins, which go from here to the rectus sinus and vena galeni. Proceeding this way, it is unnecessary to ligate any of the sinuses, but by no means should the sinus rectus be ligated or the vena Galeni, as these veins conduct the blood from the plexuses and ventricles.

For diagnostic purpose and for the removal of certain tumors, which otherwise can not be found and extirpated, the anatomical division of

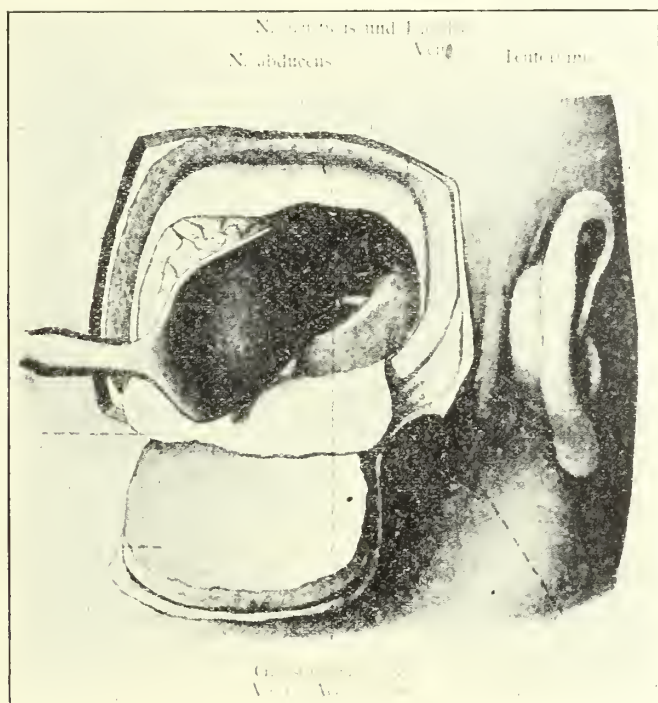


Figure 4.

the cerebellum with the knife has been successfully practiced. The cerebellum of one patient, who had been subjected to this practice by Krause three years previous to his death, showed not a trace of a scar at the postmortem. Borchard strongly endorses an anatomical division for the above reasons. We must in all operations on the brain be prepared for a sudden prolapse, particularly so in respect to the cerebellum, and still more is this true when we operate on a patient in an upright posture.

The anesthetic in these latter cases is a very difficult one, and should by no means be intrusted to the hands of a "Guck in die Luft Anesthetizer," as Cushing terms them. It is not rare to note intermission of the pulse of from one to three minutes; we may be compelled to inter-

rupt the operation sometimes from ten to fifteen minutes in order to right the patient again on account of the effect of the sudden changes of intracranial pressure upon the functions of the vital organs. Some have advocated practicing lumbar puncture during the operation, if the intracranial pressure seems to be of too extraordinary height. An objection to this, however, may be made from the point of view that a tumor might be located near the medulla oblongata and suddenly descend into the foramen magnum or spinal canal, and cause sudden death through pressure or disturbance of circulation of the cerebrospinal fluid.

Other operations of modern date of which I would like to speak are those for removal of the tumors of the hypophysis, which have acquired more practical interest since Oppenheim proved for the first time, in 1899, with the *x*-ray, an enlargement of the sella turcica. He has of late made the positive statement that a tumor of the hypophysis is present in every case of acromegaly. The diseased hypophysis is, according to Fuchs, Froelich and Stewart, responsible for many more abnormal conditions, like defective development of the testicles and hair at the pubes, early development of genitals, and early climacterium, loss of hair and dryness of skin, general adipositas and adipositas dolorosa, diabetes mellitus and insipidus, bitemporal hemianopsia, amblyopia and amaurosis. All of these symptoms may exist without any complications of acromegaly. Of the different operations proposed for attacking the hypophysis, the one which the anatomists Tandler and Muscovitz have worked out has become the one of choice. Schloffer operated in this way: He flapped the nose over to the right after temporary resection, removed all turbinate bones and the septum; inner wall of orbita as far as to the optic foramen, inner wall of left Highmore's cavity, and a part of the nasal process of the left upper maxillary; took away the ethmoidal cells, and then opened the sphenoidal cavity. Finally a thin bony plate, which was encountered about 53 centimeters behind the bony root of the nose, was broken away by aid of a tissue forcep, and immediately behind this the tumor came to view.

Schloffer succeeded in removing the hypophysial tumor without any hemorrhage and his patient recovered. Eiselberg's operation is a more conservative one; he resects only the upper turbinates, removes the anterior wall of the frontal sinus and the vomer, scrapes off the periosteum of the sphenoid bone, and then opens the bony cavity with a chisel. In his case a white membrane as large as a hazelnut bulged out and proved upon incision to be a cyst.

Of much greater interest, though, is not so much the method as the effect of an operation which Hockenegg performed just a year ago. He opened the frontal sinus in order to have a better cosmetic result than is possible with the other operations, with a temporary resection of the anterior wall. This is done by making an incision through both of the eyebrow regions and breaking the bone across with a blow upon a cold chisel. He occluded the pharynx with a gauze tampon in order to avoid the flow of blood to the mouth; left intact the inner orbital wall and Highmore's cavity. He succeeded in removing with a spoon curette the

adenoid mass of the hypophysis through an opening as large as a bean. The patient left the bed on the tenth day. The course of the convalescence turned out to be a series of daily surprises, from changes in the symptoms of the disease. On the fifth day the patient noticed that the teeth came nearer together and that the jaw-bones locked better, which could be corroborated by measurements; hands and feet grew smaller from week to week, and four weeks after operation the shoes and gloves, which were tight-fitting before the operation, had grown by far too large. Hockenegg says, in reviewing this case: "This case is the first one in which the operation for hypophyseal tumor was complicated with aeromegaly: it will serve to decide the question: What influence must be attributed to the hypophyseal tumor in the development of aeromegaly? The effect of the operation has furnished sufficient proof

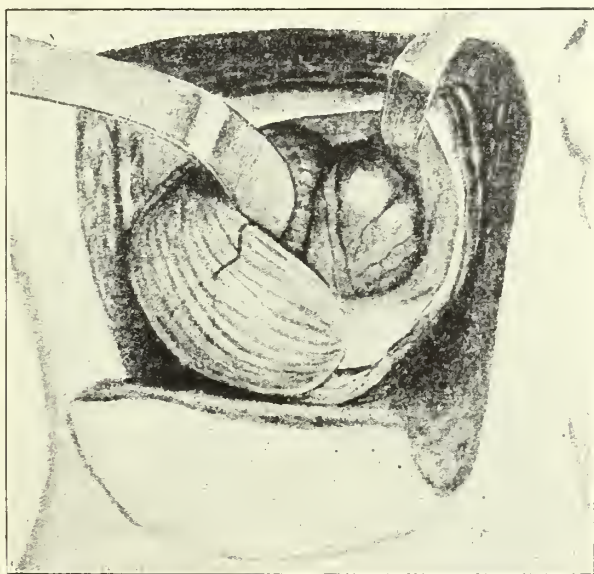


Figure 5.

that a hypophyseal tumor in acromegaly has not only symptomatic significance, but also causal. This proves further that acromegaly must be the result of a hyperfunction of the hypophysis and not of a cessation of the same. Likewise, it seems to be demonstrated that the same holds good in the acromegalic changes of the extremities. "This case is further of great therapeutic interest, inasmuch as it proves that the removal of an hypophyseal tumor influences curatively not only the pressure symptoms upon the brain and optic nerve, but also the grave affliction of acromegaly, which otherwise leads to almost certain death. Therefore, the justification for an operative interference seems to be sufficiently proven also from this standpoint."

Cf other methods which deserve mention is the one studied out by W. Braun, who demonstrated on the cadaver that one might operate

intracranially and extradurally by entering through a temporal trephine opening and keeping underneath the sinus cavernosus. A much simpler and more direct access than the others is undoubtedly the buccal-pharyngeal route, of which von Bergmann conceived the idea in 1898. He intrusted Koenig, of Altona, with the working out of this problem. This method met two great obstacles—the hindering anesthetic and the disturbance of respiration from the blood flowing into the larynx.

It has occurred to me while studying Crile's innovation and administration of an anesthetic in operations in the cavity of the mouth that probably in this way the more conservative and direct operation of von Bergmann might come in vogue.

HYDROCEPHALUS.

The chapter in brain surgery which has received wide attention of late deals with hydrocephalus and its treatment by permanent drainage. We find also in this field, as in most cerebral surgery, quite a number of Americans at the front as able pioneers. At an early date (1891) Keen, of Philadelphia, contributed an article on this subject at the International Congress of Medicine in Berlin. Our famous Senn proposed to establish a communication between arachnoid space and the subaponeurotic layer of the scalp by inserting small tubes, through trephine openings. Mikulicz, who has operated 14 cases, used to place a silk thread transversely through the ventricles; in other cases glass-wool threads encased in rubber tubes, and in some he used golden tubes, which have become very renowned.

Kausch had a novel idea in cases of hydrocephalus complicated with spina bifida, of utilizing the remnant of the sac of spina bifida for construction of a narrow canal, which he placed subcutaneously, and thus drained under the skin. It functionated perfectly, and both the hydrocephalus, as well as the spina bifida, remained cured. Cushing, whose idea is based on a very scientific study of the situation, drains into the retroperitoneal spaces after convincing himself that the foramen Magenti is open through a very ingenious procedure of examination. After performing a laparotomy he splits the posterior peritoneum and enters with a very small calibered trephine one-half of a silver cannula into the fifth lumbar vertebra, which is below the bifurcation of the big blood vessels: then the child was turned over and laminectomy performed, the subarachnoid space opened, and strands of the cauda equina separated and the posterior half of the cannula invaginated, so that it locked into the anterior half. The liquor thus drained into the peritoneal cavity and finally into the retroperitoneal space, where it was taken up by the receptacle of the chyle. He claims to be very successful with this method.

Another plan advanced by Cushing consists in grafting a piece of omentum into the subdural space. In this connection it may be mentioned that hydrocephalus may be caused through mechanical obstruction, as is demonstrated in the valve-like obstruction of the aqueductus Sylvii, in Bennighause's case; or as in the observation made by Springer, in which a cysticercus was found floating free in the fourth ventricle.

He reports another interesting case, the deductions of which may be applied with great advantage in the future. After tapping the right ventricle in one of his cases from the forehead, as Kocher advised, for the relief of choked disc, the bulging and optic neuritis of the right side disappeared within four weeks, but absolutely no change took place on the left side, and it remained in this condition until the left ventricle also had been tapped. He offers as explanation the theory that an obstruction existed at the foramen Monroi, probably in such a manner that the plexuses choroidei were forced in the foramen through pressure, and that tapping of the respective ventricle sufficed to displace it permanently. At any rate, his patient was cured, and is still well after five

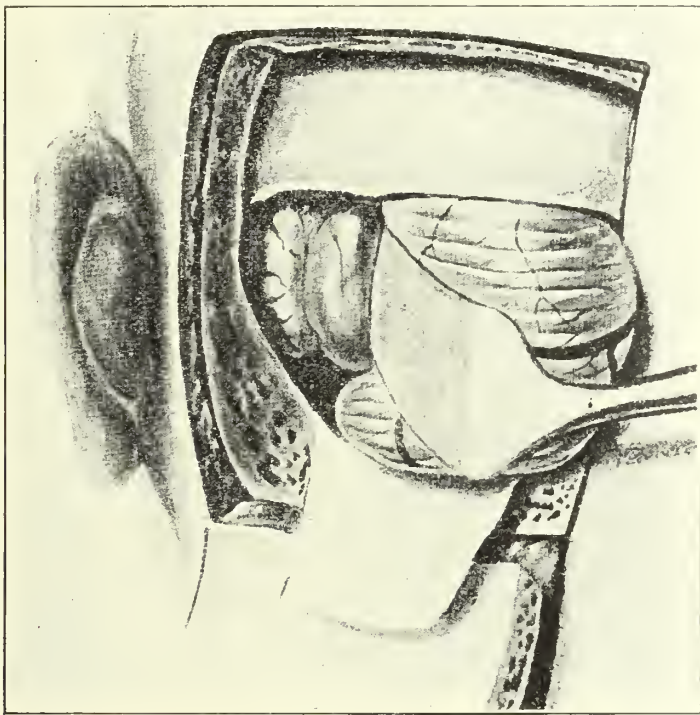


Figure 6.

months. Another plan of abdominal drainage was tried while operating for spina bifida by Heile, who thrust his finger from the same wound into the peritoneal cavity alongside of the lumbar vertebra, pulled out an intestinal loop, and sewed its peritoneal coat to the dura.

Absolutely new and most ingenious is the device of Payr. From a careful study of certain cases he came to the conclusion that the drainage of the liquor takes its direction into the venous blood route. He, therefore, speculated how he might drain into the longitudinal sinus, which, for many reasons, would be the sinus of preference. He arrived at a preliminary solution of the problem, probably with a future to it,

by connecting both the ventricle and the longitudinal sinus, by means of blood vessels which he took from some other part of the body, or from some other person. Nothing could seem more useful and applicable than a vein, because in a vein exists an ideal mechanism for preventing an overflow from the sinus into the ventricle in the form of valves. The saphenous proved to be the most suitable, because the valves are only two to five centimeters apart. The technic is, however, so complicated that it would take too much time to go into details. Those who are familiar with the research studies of Carell and Stich and Mariotti know very well what a delicate piece of work it is. I would like to mention, as pertaining to this method of operation, that Henle has successfully but independently from Payr operated in the same way.

Much simpler and probably better than all operations for this purpose, it seems to me, is the method which Professor von Schmieden, of Berlin, has advanced and successfully performed last year. It consists in dissecting the temporal vein the necessary distance and then implanting it into the lateral ventricle through a trephine opening.

In conclusion I wish to say that brain surgery may not be brilliant in comparison to general surgery, but has been put on a sound basis, and seems to give insurance of a brighter future, especially since technical means of diagnosis and localization have been devised, of such ingenious character as Quincke's lumbar puncture, Neisser Pollack's brain puncture, and Kocher's kryptometer.

625 La Salle Avenue.

FOREIGN BODIES IN THE INTESTINES.

H. SCOTT, M.B., C.M., ED.

CHICAGO, ILL.

(From the Clinic of Allen B. Kanavel, M.D., Postgraduate Hospital, Chicago.)

It is not uncommon to find in the intestinal tract foreign bodies which have been swallowed by accident or design, or have formed in the intestine, or passed into it from neighboring structures. Of the articles swallowed the list is most varied. Among other things, safety pins, pebbles, tooth brushes, teeth, artificial tooth plates, money, pen holders, needles, forks, glass, pocket knives, button hooks, marbles, fish hooks, balls of hair, pieces of bone, etc., have been found. Many of the cases are those of children who are liable to swallow strange bodies accidentally; while insane patients, suicides and professional sword swallowers are also victims. Foreign bodies introduced into the rectum may be carried up to the ileocecal valve by antiperistaltic movements.

Sometimes bodies form in the intestinal canal, often with seeds or some other body as a nucleus. Such large stones or enteroliths are reported from time to time. In Scotland, where oatmeal is largely used as a diet, they are more common and there they are called avenoliths. Various mineral constituents have been found, among which phosphates with animal matter are most common. Intestinal sand (sable intestinal) is

known of in cases where the patients are afflicted with a more or less regular discharge of fine sand concretions. It is frequently found in those who eat pears. The grains are spheroidal, of a pale brown color, and average 5 mm. to 1 mm. in size. They are composed of compact groups of thickened vegetable cells, hardened by secondary deposits of siliceous particles and ammonio-magnesium phosphate (Laboulbène) or calcium phosphate (Garrod). Besides, we may have large masses of feces obstructing the bowel or a fecal mass may become so dehydrated and hardened as to merit the name of coprolith. Masses of intestinal worms may be matted together and cause difficulty. Foreign bodies may enter through the wall of the intestine by process of ulceration. The most common bodies so found are gallstones. Sponges and forceps left at operation have also been discovered.

SYMPTOMS.

Many of the foreign bodies ingested by the patients are passed within a few days without giving rise to complications. Safety pins, even if open, generally pass without difficulty. Hedges reports such an outcome in a child 6 months old. Sometimes, however, the foreign article lodges in the esophagus, stomach, along the intestinal canal, or in the rectum. Bodies of considerable size may pass without difficulty. On the other hand, even very small objects may give rise to symptoms. Bodies may remain for months or years in the intestinal canal without symptoms or may produce signs of chronic intestinal obstruction. Wakefield reports some small pieces of money that remained quiescent for twenty months and then gave rise to pain and diarrhea. Mackee noted a piece of copper wire which passed through the abdominal wall after four months. In the case reported below, a bone evidently ulcerated through the intestinal wall and produced a localized abscess. The symptoms of foreign bodies are naturally those of the complications to which they give rise.

COMPLICATIONS.

These bodies, however acquired, may give rise to complications such as intestinal obstruction, ulceration of the intestinal wall with intestinal hemorrhage or peritoneal inflammation leading to peritonitis or localized abscess formation. *Obstruction* has been caused by a variety of objects swallowed. Among the objects mentioned are damson stones (Bell), feces hardened by large doses of iron (Bentley), safety pin (Bishop), hair ball (Brewster), 1,000 watermelon seeds (Holliday), 120 cherry seeds and 70 prune seeds (Homans), orange pips in a hernia (Pitts), fish fin in Meckel's diverticulum (Pye-Smith), undigested wheat (Somers), hair ball (Turner). Obstruction may also arise from gallstones, enteroliths, intestinal sand, sponges, worms, etc. Concerning obstruction to gallstones and enteroliths, Parks collected 149 cases due to gallstones and enteroliths, 133 of the former and 16 of the latter. Aberle found 32 enteroliths in a patient, each having a cherry stone as a nucleus. The frequency of obstruction from gallstones as compared to other causes is given by Fitz as 1-13, Leichtenstern 1-28 (1.152 cases).

Barnard 1-45 (360 cases). It generally occurs in older individuals. The small intestine grows narrower as we proceed toward the cecum; consequently the smaller stones lodge nearer the ileocecal valve. It is probable that the muscular contraction has something to do with the obstruction, since the obstructing stone is frequently smaller than the lumen of the bowel. Barnard gives the following table as to the site of obstruction in cases reported by himself and Treves:

Diameter.	Point of Obstruction.
2 1/4 inches.....	Upper jejunum.
1 1/3 inches.....	Jejunum.
1 1/4 inches.....	Middle of jejunum.
1 1-7 inches.....	Lower jejunum.
1 1/8 inches.....	Five feet up on ileum.
1 inches.....	Several feet up on ileum.
7/8 inch	Five feet up on ileum.
1 inch	Ileo cecal valve.

PERFORATION.

Perforation of the bowel may occur in any case, but it is more common in sharper bodies: pieces of bone, fish hooks, needles, fruit stones, etc. Owing to the nature of the process, a localized abscess generally forms instead of a generalized peritonitis. Neugebaur has collected statistics showing that of foreign bodies left in the abdomen, 10 of 28 pieces of gauze, 1 of 4 drainage tubes and 3 of 17 artery forceps passed per rectum.

PROGNOSIS AND TREATMENT.

In a majority of cases, the foreign bodies give rise to little trouble. Their position and movements can be watched by the x-ray and operation instituted, if necessary. Conservative treatment is indicated unless complications arise. The use of potato diet and the ingestion of absorbent wool, given with the idea of surrounding the object and facilitating its removal, has been tried with some success. A handful of absorbent wool is teased up finely and given in milk or in a sandwich. Care should be taken not to use so much wool as to form a large bolus which might itself cause obstruction. If operation is instituted, the body is removed by enterotomy and the intestine closed in the usual manner. If complications are met with they should be dealt with as the occasion demands.

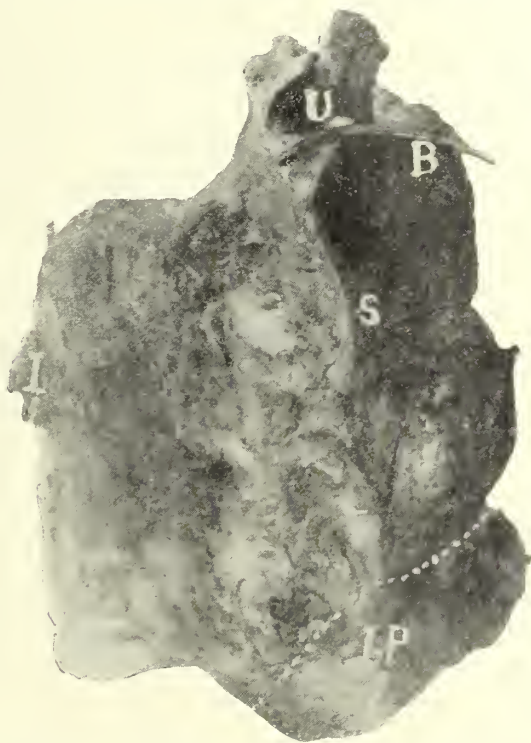
I submit the following report of a case in the clinic of Dr. Kanavel and operated on by him at the Postgraduate Hospital:

Mrs. M. W., colored, aged 38, was admitted to the hospital December 13, complaining that for nine months she had had a swollen abdomen, with darting sharp pain over same and had noticed a hard lump to right of umbilicus, which gradually moved to immediately under the umbilicus, where it began to discharge externally, some pain above symphysis pubes, although not severe, bowels constipated, loss of appetite and occasional headaches.

Examination.—Patient a thin and anemic looking woman. Lungs: Expansion poor, chest flattened anteroposteriorly, rather well marked, dullness over both upper lobes anterior and posterior, more marked on right side, slight increase of breath sounds on right side, no râles. Heart apparently healthy. On examining the abdomen there was seen a swelling in the middle line extending from the pubes to the lower edge of the umbilicus, where it opened externally by a sinus which discharged a milky pus. On palpation the mass was found to be

firm, only slightly tender, extending only a little to the left of the median line, while to the right it could be outlined almost to the inner surface of the ileum. On bimanual palpation the mass was found to be firmly fixed to the abdominal wall and pelvic structures and seemed to be attached to the pubes, to Poupart's ligament on the right side and to extend to the right to the surface of the ileum. The uterus could not be outlined. The cervix was high and could not be moved forward or backward.

Operation (Dr. Kanavel, December 18).—The opening of the sinus was closed with catgut. The tissue about the opening of the sinus was excised and the skin incision continued in the median line down to the symphysis. The layers of the abdominal wall were found to be replaced by firm connective tissue. The skin was retracted, the peritoneal cavity opened and the peritoneum dissected off of the under surface. Dissection was begun at the upper end of mass and continued



Photograph of tumor mass removed. U, umbilicus; B, bone; S, skin; I, intestine; P, infra pubic portion.

toward the pubes. On the under surface the small bowel was found firmly adherent to the mass and in the separation of same a large opening was made in the gut. This was closed at once with Lembert silk sutures. On further dissection the mass was found to lie against the bladder and to be attached to it by loose connective tissue. The mass was freed from its abdominal and pelvic attachments and cut free from the pubic bone to which it was firmly attached. In removing the mass a small sharp pointed fishbone dropped from the lower end of the sinus. The pelvic viscera were apparently normal, and no denuded bone was found around the rim of the pelvis. A gauze drain was placed in the cul-de-sac and the abdominal wound closed with layer sutures of catgut. The gauze was removed in twenty-four hours; the discharge from the wound ceased in fifteen days, the patient leaving the hospital well on the eighteenth day after operation.

Examination of Specimen (See Photograph).—A hard white mass. Longitudinally in center on one side where opening was made the sinus is seen to extend to the bottom of the specimen. Except for the fishbone there are no foreign bodies noted in specimen except one or two pieces of No. 3 catgut in the portion of skin removed with growth. Microscopical examination of sections from the outer surface of the base and from the inner surface of the sinus showed only inflammatory tissue.

CASE 2.—The following case is one in which a fatal issue followed the swallowing of a foreign body and was seen by Dr. Kanavel in consultation with Dr. Pollock and Dr. W. H. Wilhite. There was given a history, through attendants, of having swallowed at various times, nails, pins and other foreign bodies while in an insane ward. Five days before consultation the patient began to complain of pain in the abdomen with tenderness. She was transferred to the surgical ward, where a large number of pins were removed from the rectum. Her temperature varied from 100 to 101 F. and evidences of local peritonitis developed. At the end of the fifth day she was operated on by Dr. Kanavel, assisted by Dr. Wilhite and Dr. Dunne. At the operation a large accumulation of pus was found apparently associated with a very extensive peritonitis. The appendix was normal. A diagnosis was made of diffuse peritonitis, probably due to a foreign body. The disease was progressive and she died at the end of the fourth day after operation with all the evidences of death due to peritonitis. On postmortem performed by Drs. Kanavel, Conover and Scott, a number of small perforations were found through the colon, particularly in the sigmoid region, from which the peritonitis had apparently developed. Four inches from the sigmoid there was a small diverticulum one-half inch in length, but there was no evidence of inflammation about this. Diagnosis: Death due to peritonitis as a result of penetration of the wall of the duct by foreign bodies.

MEASLES MORE DANGEROUS THAN DIPHTHERIA OR SCARLET FEVER.

A recent issue of the *Bulletin* of the Chicago Board of Health shows the following statement which should be known to every physician and citizen:

"Measles caused more deaths than scarlet fever during the week, and yet measles is very generally regarded by the public as of no consequence. As a matter of fact, measles each year kills more infants than either diphtheria or scarlet fever. It is a big factor in the mortality among children under one year of age. During the last five years it has caused 195 deaths among infants under one year, whereas scarlet fever caused 96 and diphtheria 161.

"Do not expose the well to cases of measles—especially keep babies away from those sick with this disease. Cases of measles must be isolated; visiting an infected house is prohibited. Children in a house where measles exists must not play with or visit other children in the neighborhood. Adults who have never had measles must remain at home if a case exists in their home."

ILLINOIS STATE MEDICAL SOCIETY

Official Minutes of the Fifty-Ninth Annual Meeting held at
Quincy, May 18, 19 and 20, 1909.

FIRST GENERAL MEETING.

The Society met in the main auditorium of the Vermont Street M. E. Church at 9 a. m. Tuesday, May 18, and was called to order by the President, Dr. J. W. Pettit, of Ottawa.

Prayer was offered by M. Edward Fawcett, of Quincy, Bishop of the Quincy diocese.

In the absence of Dr. Joseph Robbins, of Quincy, who was to have delivered an address of welcome, Dr. R. J. Christie, Jr., of Quincy, acted as substitute. Dr. Christie said:

*Mr. President and Members of the Illinois State Medical Society:—*I regret very much to announce that our worthy Chairman of the Committee of Arrangements, Dr. Robbins, who was to have had the honor of welcoming you to Quincy, and who performed this pleasing duty on two previous occasions, is at this moment detained on account of illness, and, speaking for him, I wish to say that we are more than glad to have you with us, and I extend to you a most hearty welcome. We hope and trust that you may have a pleasant and profitable time during your stay with us. (Applause.)

RESPONSE TO ADDRESS OF WELCOME.

President Pettit:—Dr. Christie, on behalf of the members of the Illinois State Medical Society I wish to say that we accept the cordial welcome that has been so graciously tendered to us by you. I feel like an old resident in Quincy, and it is unnecessary for the medical profession or any other members of this community to tell us that we are going to have a good time while here. I know we will. I have been in Quincy before, and have always had a good time. There is no city in the state more hospitable than Quincy, and I feel assured that we will have a pleasant and profitable meeting, and that we will enjoy the entertainments that have been provided for us by the Committee on Arrangements. (Applause.)

REPORT OF COMMITTEE ON ARRANGEMENTS.

Dr. R. J. Christie, Jr., acting as Chairman of the Committee of Arrangements, stated that in the evening of the second day, at 7:30, a river excursion and reception would be extended to the members of this society; that there would be a trip on the Diamond Jo Packet Steamer *Dubuque* to Canton, Mo., and return.

The Chairman of the Committee on Entertainment for the Ladies has made preparations for automobile rides to the parks, country club, a reception, and complimentary luncheon Wednesday.

Various announcements would be made by the Committee on Arrangements from time to time.

On motion the general meeting then adjourned, after which Section 1 was called to order.

SECOND GENERAL MEETING.

The association reassembled at 8 p. m. and was called to order by the First Vice-President, Dr. J. L. Wiggins, of East St. Louis. The President, Dr. J. W. Pettit, of Ottawa, delivered his annual address. He selected for his subject, "The Relation of the Medical Profession to the Secular Press." President Pettit was followed by Dr. John A. Witherspoon, of Nashville, Tenn., who delivered, by invitation, the Address of Section 1, entitled "The Doctor in Civic Life."* Adjourned.

THIRD GENERAL MEETING.

The general meeting was called to order by the President at 11 a. m. Secretary Weis read the report of the proceedings of the House of Delegates. (See report of the House of Delegates.) On motion the report was adopted. The retiring President appointed Drs. Joseph L. Miller and H. N. Rafferty as a committee to escort the President-elect to the platform.

In introducing him Dr. Pettit said: I present to you your President-elect, Dr. Wiggins, of East St. Louis, and in doing so I can assure you that you have elected one of the most active men in the state. (Applause.)

Dr. Wiggins, in accepting the Presidency, said: No one can be unmindful of the honor of being elected President of this magnificent society, which is, without question, the best, most efficient state medical society in the United States. We have much to be proud of. We have behind us fifty-odd years of hard, efficient, good work. The membership of this society comprises some of the most eminent men in the United States. Within the borders of the state is the great city of Chicago. Through hard, unselfish, scientific work this city has become practically the medical center of the United States, with the possibilities of being the medical center of the world (applause), and that has been accomplished by what? By unselfish devotion to scientific matters. If this spirit of unselfish devotion continues among the individual members toward the betterment of our condition we hope to accomplish great things. As your President, I sincerely hope that your energies will not be wasted in bickerings and in intrigues and in little differences which imply only a selfish interest on the part of the individual. I shall expect all of you, as individual members of this society, to give me your hearty cooperation in every point which will tend to its betterment, and, as I

* For text of paper see page 12.

have said previously, there is nothing that will debar me in any way from giving the members a square deal. I thank you. (Applause.)

EDMUND W. WEIS, Secretary.

MINUTES OF SECTION ONE.

MAY 18, 1909—FIRST SESSION.

Chairman—Dr. Joseph L. Miller, Chicago.

Secretary—Dr. Clarence A. Wells, Quincy.

The section was called to order at 9:15 a. m. by the chairman.

Dr. Frank S. Churchill, of Chicago, read a paper entitled "Serum Treatment of Epidemic Cerebrospinal Meningitis," which was discussed by Drs. Munson, Billings, Dodson, and in closing by the essayist.

Dr. Frank X. Walls, of Chicago, read a paper entitled "Pyloric Stenosis in Infants."

Dr. R. T. Woodyatt, of Chicago, contributed a paper on "The Value of Diabetic and Prepared Foods," which was discussed by Drs. Herriek, Elliott, Billings, Churchill, Williamson, and in closing by the essayist.

Dr. Joseph A. Capps, of Chicago, and Dr. Dean D. Lewis, of Chicago, contributed a joint paper on "The Advantages of Intermittent Positive Pressure for Resuscitation," which was discussed by Dr. Dodson, and in closing by Dr. Capps.

Dr. Frank Billings, of Chicago, spoke on "The Responsibility of the State in the Care of the Mentally Deficient and Insane Dependents."

His paper was discussed by Drs. Lillie, Jenks, Norbury, Lovewell, Churchill, and in closing by the essayist.

On motion, the section adjourned until 1:45 p. m.

SECOND SESSION.

The section reconvened at 1:45 p. m., and was called to order by the chairman.

Dr. F. G. Harris, of Chicago, read a paper entitled "The Value of the Wassermann Test in Nervous and Cardiovascular Diseases," which was discussed by Drs. Hess, Billings, Miller, and discussion closed by the essayist.

Dr. W. C. Lillie, of East St. Louis, read a paper entitled "Tuberculosis in Infants and Children," which was discussed by Drs. Hemenway, McNeill, and in closing by the essayist.

Dr. E. H. Butterfield, of Ottawa, read a paper entitled "A Brief Report of Cases of Early Pulmonary Tuberculosis Treated by Different Tuberculins."

Dr. Frederick Tice, of Chicago, followed with a paper on "Cutaneous Reactions of Tuberculin."

These two papers were discussed together by Drs. Munson, Ingals, Bouton, and in closing by the essayists.

The next order was a symposium on Nephritis.

Papers were read as follows: "The Significance of Albumin and Casts in the Urine," by Dr. Arthur R. Elliott, of Chicago.

"Nature of the Cardiovascular Changes in Nephritis," by Dr. Alfred C. Croftan, of Chicago.

"The Value and Limitations of Salt-Free Diet and Restriction of Food in Nephritis," by Dr. Charles Spencer Williamson, of Chicago.

The discussion on this symposium was opened by Dr. James B. Herrick and continued by Drs. Brown, Stuart, Keyes, Babcock, and in closing by Drs. Elliott, Croftan and Williamson.

Drs. E. H. Weld and P. L. Markley, of Rockford, contributed a joint paper entitled "Report of a Case of Hodgkin's Disease; the Primary Tumor in the Gall-Bladder."

The chairman announced as the Committee on Nominations Drs. S. E. Munson, Springfield; Jacob S. Kauffman, Blue Island, and C. B. Horrell, Galesburg.

This committee subsequently brought in the following report: Chairman of Section One, Dr. W. H. Gilmore, of Mount Vernon; secretary, Dr. Frederick Tice, of Chicago.

On motion the report was adopted.

The scientific work of this section having been finished, the section, on motion, then adjourned *sine die*.

MINUTES OF SECTION TWO.

MAY 19, 1909—FIRST SESSION

Chairman—Dr. Franklin N. Eisendrath, Chicago.

Secretary—Dr. H. N. Rafferty, Robinson.

The section was called to order at 9 a. m. by the chairman.

Dr. Lawrence Ryan, of Chicago, read a paper entitled "Conservative Joint Surgery."

Dr. E. K. Lockwood, of Virden, read a paper entitled "Fracture of the Pelvis with Rupture of the Bladder, and Report of Four Cases."

Dr. William Fuller, of Chicago, followed with a paper on "Fracture of the Acetabulum with Central Dislocation of the Femur."

These three papers were discussed by Drs. Sullivan, Bevan, Wiggins, and the discussion closed by Drs. Fuller and Lockwood.

Dr. Clifford U. Collins, of Peoria, read a paper entitled "Surgical Treatment of Appendicitis."

Dr. G. W. Green, of Chicago, read a paper on "Treatment of Pus Appendix."

These two papers were discussed jointly by Drs. Ochsner, Graham, Deaver, Black and Harris.

The next order was a symposium on Gastric and Duodenal Ulcers.

Papers were read as follows:

(a) "Diagnosis," by Dr. Christopher Graham, of Rochester, Minn.

(b) "Medical Treatment," by Dr. B. W. Sippy, of Chicago.

(c) "Treatment of Non-Perforating Ulcers," by Dr. A. J. Ochsner, of Chicago.

(d) "Treatment of Perforating Ulcers," by Dr. J. E. Allaben, of Rockford.

The discussion on this symposium was opened by Dr. John B. Deaver, of Philadelphia, and continued by Drs. Fuller, Billings, Simpson, Horan, and in closing by the essayist.

On motion the section adjourned until 1:45 p. m.

SECOND SESSION.

The section was called to order at 1:45 p. m. by the chairman.

Dr. S. C. Stremmel, of Macomb, read a paper entitled "When Shall We Operate for Uterine Fibromata and Myomata?"

This paper was discussed by Drs. Cuthbertson, Van Hoosen, and in closing by the essayist.

Dr. John B. Deaver, of Philadelphia, delivered the Address in Surgery. He selected for his subject "Gallstone Disease."

At the conclusion of his address, on motion of Dr. Frank Billings, a rising vote of thanks was extended to Dr. Deaver for his admirable paper.

At this juncture Dr. George W. Webster, president of the Illinois State Board of Health, announced that Senate Bill No. 214, known as the Osteopath Bill, came up this afternoon for final vote and a roll call was demanded. The total number of votes cast was 117. Of these there were 45 for the bill and 72 against it. The result of the vote was received amid cheers and great applause.

Dr. G. H. Galbraith, of Clifford, read a paper entitled "Skin Grafting, with Report of a Case."

Dr. C. B. Horrell, of Galesburg, read a paper entitled "Report of a Case of Brain Tumor, with Specimen of Brain and Tumor."

This paper was discussed by Drs. Norbury, Bevan, and in closing by the essayist.

Dr. S. C. Glidden, of Danville, read a paper entitled "A Rare Case of Pemphigus Requiring Surgical Attention."

Dr. Emil G. Beck, of Chicago, read a paper entitled "Diagnosis of Disease of the Lung and Pleura, with Presentation of Patient."

At this juncture the chairman of the section appointed the following Committee on Nominations: Dr. A. J. Ochsner, of Chicago, chairman; J. E. Allaben, of Rockford, and A. Belcham Keyes, of Chicago.

Dr. V. C. David, of Chicago, and Dr. J. R. Kauffman, of Chicago, read a joint paper entitled "Two Cases of Bismuth Poisoning."

The paper was discussed by Dr. Beck, and in closing by the essayists.

Dr. A. J. Ochsner, of Chicago, reported, as chairman of the Committee on Nominations, that the committee nominated for chairman of the section Dr. S. C. Stremmel, of Macomb, Ill.; secretary, Dr. Dean D. Lewis, of Chicago.

On motion of Dr. Bevan, seconded by Dr. Ochsner, the report of the nominating committee was adopted.

Dr. Arthur D. Bevan, of Chicago, and Dr. H. L. Kretschmer, of Chicago, read a joint paper on "Diagnosis and Treatment of Urethral Calculus."

Dr. Potter, of the Presbyterian Hospital, Chicago, followed with a short paper on "X-Ray Work."

Dr. Gustav Kolischer, of Chicago, read a paper entitled "A Prostatic Brief."

Dr. L. E. Schmidt, of Chicago, followed with a paper entitled "Vesical Symptoms due to Diseases External to the Bladder."

These four papers were discussed together by Drs. Bevan, Deaver, Hamilton, and in closing by Drs. Kretschmer and Kolischer.

Dr. Dean D. Lewis, of Chicago, read a paper on "Embolie Aneurysms," and exhibited four aneurysms, after which the section, on motion, adjourned *sine die*.

THURSDAY, MAY 20, 1909—JOINT SESSION OF SECTIONS—BORDERLINE CASES.

The joint meeting was called to order by Dr. Clarence A. Wells, of Quincy.

Dr. Channing W. Barrett, of Chicago, read a paper entitled "Recognition and Treatment of Ectopic Gestation," which was discussed by Drs. Cuthbertson, Wiggins, Keyes, and in closing by the essayist.

The next order was a symposium on Exophthalmic Goiter.

Papers were read as follows:

"Diagnosis of Exophthalmic Goiter," by Dr. Hugh T. Patrick, of Chicago.

"Medical Treatment of Exophthalmic Goiter," by Dr. D'Orsay Hecht, of Chicago.

"Surgical Treatment of Exophthalmic Goiter," by Dr. Carl E. Black, of Jacksonville.

"Thyroidectomy for Dementia Præcox; A Preliminary Report of the Results in Ten Old Cases of Dementia Præcox," by Dr. Allen B. Kanavel, of Chicago.

The paper of Dr. Kanavel was supplemented by a brief paper by Dr. Lewis J. Pollock, of Chicago.

The symposium was then discussed by Drs. Norbury, Hecht, Patrick, and in closing by Dr. Kanavel.

On motion the joint meeting of the sections adjourned *sine die*.

MINUTES OF THE HOUSE OF DELEGATES.

THE FIFTY-NINTH ANNUAL MEETING, HELD AT QUINCY ON MAY 18, 19
AND 20, 1909.

FIRST SESSION.

The House of Delegates met in the Sunday School Room of the Vermont M. E. Church at 8:45 a. m. and was called to order by the President, Dr. J. W. Pettit, of Ottawa. The President stated that this first meeting was simply for the purpose of organization.

Dr. J. E. Stubbs, of Chicago, moved that a Committee on Credentials be appointed, consisting of the chairman of the Chicago delegation and four others outside of Cook county. Seconded.

Dr. E. W. Ryerson, of Chicago, moved as an amendment that the secretary, Dr. Weis, be chairman of this committee. The amendment was seconded and the original motion as amended was carried.

President appointed on this committee Drs. Weis, Noble, Rice, Wiggins and Grinstead.

Dr. Carl E. Black, of Jacksonville, moved that the secretary be instructed to telegraph the members of the House of Representatives of Illinois the protest of the society against osteopathic legislation. This motion was seconded by several and carried.

On motion the House of Delegates then adjourned until 4 p. m.

TUESDAY, MAY 18, 1909.

The House of Delegates was called to order by President J. W. Pettit promptly at 4 o'clock p. m. Upon roll call a quorum was declared present. Minutes of the morning session of the House were read and approved. Secretary E. W. Weis read reply to telegram sent Dr. L. C. Taylor, giving status of Osteopath Bill.

President J. W. Pettit:—I think the report of the Committee on Credentials is next in order.

Chairman Weis of the Committee on Credentials reported that the committee recommends the seating of those delegates as per list read and submitted.

On motion the report of the Committee on Credentials was adopted unanimously.

President J. W. Pettit:—There are some matters we will have to dispose of before the House is fully organized. One is the representations of those counties who come to us irregularly. It is the custom, I think, in all deliberative bodies, those especially that desire to be properly democratic in conduct, not to be technical in the matter of representation, but it is quite the usual thing to permit the representatives, for instance in this case, of the counties present to name somebody to act for them, and if you want to take those counties up singly and dispose of them in that way we will do so, or, if you want to lump them, we will do so. The matter is before you. I will entertain a motion to dispose of this matter.

On motion it was decided to pass upon the question of seating the delegates not presenting their credentials, singly. This action was taken in the following counties and their representatives seated: Hancock, McDonough, Sangamon and St. Clair. Whereupon the President declared the House fully organized and open for business.

Secretary Weis read a communication from Dr. George H. Simmons, as follows:

Dr. E. W. Weis, Secretary Illinois State Medical Society, Ottawa, Ill.:

My Dear Dr. Weis:—I take great pleasure in transmitting the resolution adopted by the House of Delegates of the American Medical Association at the recent session, held in Chicago:

Resolved, That the American Medical Association extends its thanks and appreciation to the Cook County Medical Society, the Illinois State Medical Society and the medical profession of the city of Chicago and the state of Illinois for their courtesy, hospitality and tireless energy in entertaining this Association.

On motion, the resolution was adopted unanimously by a rising vote. With thanks for your valued assistance and cooperation, I am, yours truly,

GEORGE H. SIMMONS,
General Secretary, American Medical Association.

President Dr. J. W. Pettit read his report of the year's work, which report is as follows:

To the House of Delegates of the Illinois State Medical Society:

In giving an account of my stewardship as president during the past year permit me to report briefly what I have done, together with a few recommendations embodying my views as to the demands of the state organization and more particularly of the component societies.

I have visited seventy-six counties individually and have met with the several district societies, and in this way have come into close touch with the profession throughout the state. While nearly all these meetings have been especially called to accommodate my convenience, as a rule, they have been very much better attended than the regular meetings. In several instances almost the full membership were present, and in only two was there a failure, and these were in counties where the societies have been inactive for a long time. It has been the purpose of my canvass to present the desirability and necessity for medical organization, appealing to medical men from the standpoint of their civic and professional duties and their material interests as well. It was also my purpose to make an investigation of actual conditions in the several counties, a knowledge which could only be obtained by a personal visit.

It is too early to make a report upon the results of my work. Whatever effect it may have will be felt later. I have made a special effort to visit the small counties and weaker societies. My explanation, if any be needed, for not visiting the more prosperous societies is for the lack of time and because they did not seem to need my services.

My canvass of the state convinces me that there are inherent defects in the conduct of the affairs of the component societies which can and must be improved before these organizations will attain their highest degree of efficiency. The principle reason why the local societies are not more successful is because they are left too much to their own initiative and are following antiquated ideas. The failure to secure the active cooperation of medical men in this great organization movement is not, in my opinion, due so much to lack of interest on their part as to defective methods which, I believe, if appreciated can be corrected. Permit me, therefore, to make a few suggestions which, if adopted, I believe will greatly improve present conditions.

I think we should follow the plan adopted by the American Medical Association of having the president-elect commence his active duties one year after his election. In the meantime he should cooperate with the acting president at least to the extent of keeping in touch with his activities. This will not only familiarize him with the work of the state society but will better fit him for inaugurating and carrying out his own plans when he assumes the duties of his office. Under the present plan the president spends all or a greater part of his term of office familiarizing himself with conditions which he should understand before he enters upon his active duties. The result is that about the time his term of office expires he is equipped to do efficient work. I hope this suggestion will receive your careful consideration.

I also recommend that the necessary expenses attending the work of the president be paid by the society. If properly performed, the duties of the president entails considerable expense in time and money. I believe he should contribute his time but that the society should pay his expenses. The duties and responsibilities of the president are increased year by year. If this recommendation is not adopted either now or in the near future, the time will come when no member of the society, unless he be wealthy, can accept the position of president and properly perform its duties.

The Secretaries Association should be encouraged in every possible way. Upon the secretary more largely than upon any other officer depends the success of the component societies. The good secretary is the brains, the drudge, the life, and the hope of the society. I have observed that wherever there is a good secretary there is a good society, and where there is a poor society there is usually a poor secretary. However, too much work is left to this officer, and any organization which depends alone upon the enthusiasm, ability and patriotism of one man will not usually flourish if it is so unfortunate as to lose the services of that man. It is extremely unfortunate to have any organization depend for its existence upon one man, no matter how good he may be.

Some of the live secretaries of the state have organized an association which I hope will become a permanent and effective aid in promoting our interests. I believe this organization will prove of more practical value than any other agency now in existence. This organization, properly directed, will prove to be a clearing house of ideas and will bring the component societies not only into closer touch with each other but will also enable all to avail themselves of the original and progressive work of each; therefore, I recommend that we not only encourage this organization but help it in every way, even to the extent of giving it, if necessary, substantial financial assistance. I think as an act of justice and a mark of appreciation of the arduous duties performed by the secretary that the component societies should, as a rule, pay the expenses of the secretaries each year to the meeting of the state association. I appreciate the fact that where the membership is small this may not be practicable, but even the smaller societies should show their appreciation of a good secretary in some substantial way.

The primary purpose of the medical society should be for the advancement of medical science. To this end the scientific program must be made attractive and profitable. The usual perfunctory and stereotyped program of the average local society is its weakest point. Where it is known in advance that the program will be interesting there is usually a good attendance. If the programs of any given society are always interesting a good attendance is assured. Under present conditions the program is left too much to chance, or the initiative of the secretary. This work should be placed on a more systematic and business-like basis and the secretary relieved of what is usually the most arduous, disagreeable and unsatisfactory part of his work. I believe we can strengthen this department by applying the principle of the University Extension Course to our medical society work. To this end I wish to urge the adoption of the recommendation made by my predecessor, President Baum, of establishing a lecture bureau which shall provide outside speakers for the several societies where such talent is desired. In order to put this plan on a systematic basis, I have to suggest that leading medical men throughout our own and adjoining states be requested to assist in this movement; these names to be arranged according to their specialties if they so desire, having each indicate into what territory he is willing to go without expense to the local societies. This will give the component societies the advantage of the best medical talent, which will prove an attractive feature of society work and will also give the specialist and others an opportunity to extend their acquaintance to the mutual advantage of both. This bureau should be under the direction of the secretary of the state society.

I have also to suggest that the vice-presidents be assigned more active duties. It will not be practicable, and it is not probable that it will be necessary very soon for any president to devote as much time as I have to canvassing the state. The vice-presidents, instead of holding simply an honorary position, can materially assist the president when requested by looking after the work devolving upon this officer in their respective localities.

I wish also to suggest to the component societies that more care be taken in the selection of officers and especially secretaries. These positions are often conferred as an honor upon the recipient rather than with a view to promoting the interests of the society.

I believe if the forces which I have suggested are set in motion that through them, and the evolution of the other forces which they will bring into play, the

component society, which is the basis of our whole structure, will be brought to a higher degree of efficiency and thus work out the great problems which lie before us as a profession, and which can only be accomplished by an effective organization. Respectfully submitted,

J. W. PETTIT.

It was moved that the report of the President be referred to the Council and that this House of Delegates concur in the recommendations therein set forth. Motion carried.

Dr. J. A. Egan begged for the privilege of the floor and spoke along the line of the pending legislation now before the General Assembly relative to the osteopaths, and suggested that those sending individual telegrams to their representatives request them especially to oppose Senate Bill 214, now on a third reading.

The suggestion of Dr. Egan was fully discussed and on motion was concurred in.

Dr. R. J. Christie moved that each delegate present send a message to his respective representative in Springfield requesting that Senate Bill 214 be defeated. After a thorough discussion the motion was carried.

Secretary Weis read his report of the past year's work, which report is in the following words and figures, to-wit:

SECRETARY'S REPORT.

To the House of Delegates, Illinois State Medical Society: Your secretary begs leave to present the following report. Remittances were received from May 2, 1908, to May 1, 1909, from the Component Societies, Subscriptions, from the Committee of Arrangements at Peoria, and other sources in the accompanying amounts.

You will notice by this list that there are seven component societies who are not mentioned, but since the date of this report several of these have remitted. Of these seven there are only three which stand automatically suspended, i. e., Bond, Pope and Hardin, but I am confident that from the very encouraging reports received from these counties that these societies will take on new life and become reinstated.

It gives me the greatest pleasure to once again be able to report that the spirit of organization among medical men is still abroad in this great state of ours. Whether our increase of new members is due to the heroic efforts made by our president or from whatever cause, it speaks well when I am able to say that we have taken on 607 new members. In addition to this there were reinstated of suspended members 107. I regret that we have been compelled to drop from the rolls, by reason of removals and suspensions, 232 and that the grim reaper has lessened our number by 40.

By comparison the above showing is extremely gratifying, when we take into consideration that during the past year there were no solicitors for membership in the field. The year before we had six organizers, who interviewed almost every eligible physician in the state, the result of their labor being 797, and this year, without solicitors, we have entered 607 new members, reinstated 107, making a total of 714.

In my last annual report I called attention to the efforts being made by your secretary to induce the payment by members of the per capita tax in advance, or, at least, in the earlier part of the year. While under the old system of paying about when the year had expired, or later, the state society did lose some money by the refusal of members to pay back tax. The mere collection of money is not by any means my object in bringing this point again to your attention, but we all know that neglected payments becomes a hardship, and I am firmly convinced that our loss of members is more the result of this condition than any

other. I am, therefore, urging the secretaries to increased diligence in this regard. In this same connection I again wish to say that the postal rule compels us to drop names from the mailing list that have not paid their per capita tax. When this feature has become sufficiently appreciated we will have to change our by-laws to make this matter compulsory.

Adams	\$ 184.75	Logan	\$ 47.50
Alexander	62.50	McDonough	22.50
Boone	45.00	McLean	145.50
Brown	27.50	Macon	161.50
Bureau	67.50	Macoupin	99.00
Calhoun	17.50	Madison	177.50
Carroll	45.00	Marion	69.50
Champaign	124.00	Marshall-Putnam	62.50
Clark	35.00	Mason	35.50
Clay	32.50	Massac	75.00
Christian	27.50	Menard	37.50
Clinton	56.75	Mercer	52.50
Coles	95.00	Monroe	40.00
Cook-Chicago Medical So-		Montgomery	56.75
ciety	4,895.00	Moultrie	36.00
Crawford	77.50	Ogle	54.50
Cumberland	17.50	Peoria	220.00
DeKalb	56.00	Piatt	40.00
Dewitt	10.00	Pike	57.50
Douglas	107.50	Pulaski	45.00
Edwards	25.00	Randolph	31.75
Efingham	27.50	Richland	30.00
Fayette	20.00	Rock Island	60.00
Edgar	130.00	St. Clair	315.00
Franklin	30.00	Saline	70.00
Fulton	95.00	Sangamon	202.00
Gallatin	27.50	Schuyler	30.00
Greene	70.00	Scott	35.00
Grundy	77.50	Shelby	15.00
Hamilton	25.00	Stark	22.50
Hancock	72.00	Stephenson	89.50
Henderson	15.00	Tazewell	45.00
Henry	72.50	Union	92.50
Iroquois-Ford	114.00	Vermilion	88.75
Jackson	42.50	Wabash	39.00
Jefferson	45.00	Warren	65.00
Jersey	20.00	Washington	52.50
Jo Daviess	66.00	Wayne	45.00
Johnson	35.00	Whiteside	65.00
Kane-McHenry-Fox R. V. M.	250.50	White	5.00
Kankakee	102.50	Will	113.00
Kendall	27.50	Williamson	87.50
Knox	50.00	Winnebago	268.00
Lake	102.50	Woodford	36.75
La Salle	183.00	Subscription	93.00
Lawrence	37.50	Committee on Arrange-	
Lee	80.00	ments, Peoria	173.16
Livingston	117.50	Advertising	2.00

Total\$11,652.66

For Defense Fund.....\$4,484.00

Your secretary has attended every meeting of the Council during the past year and has taken an active part in its deliberations.

In February last the Scientific Committee held a meeting in Chicago, at which time it outlined the program for this meeting. This committee seriously considered the advisability of returning to our former method of holding both sections simultaneously. I merely bring it up here for the purpose of showing

that it was considered and, if necessary, to get an expression from this House of Delegates, as has been done before.

There are still a few of our component societies that have not changed their fiscal year to conform with that of the state society. It saves time and trouble and much useless bookkeeping were those societies to make the necessary change.

Respectfully submitted,

E. W. WEIS, *Secretary.*

It was moved and seconded that the secretary's report be accepted and published in THE ILLINOIS STATE MEDICAL JOURNAL. Motion carried.

Dr. Frank P. Norbury made a verbal report of the Committee on Medical Education in substance as follows:

REPORT OF COMMITTEE ON MEDICAL EDUCATION.

To the House of Delegates, Illinois State Medical Society: Your Committee on Medical Education would respectfully report that nothing of special interest has occurred during the past year along medical educational lines, excepting the meeting of the Council on Medical Education, American Medical Association. Your Chairman attended this meeting in April as the representative of the Illinois State Medical Society; he is pleased to note the progress being made in the advancement of preliminary requirements and the adoption by leading medical colleges of uniform movements. Also, the desire to unify the curricula of medical colleges by the recommendations of standard courses conducted with a view of harmonizing the work of all.

Your Chairman also attended two examinations for license to practice in the state, as conducted by the Illinois State Board of Health and was pleased to note the thoroughness of the system in vogue, whereby all the exigencies arising in such procedures are met without friction or criticism.

Your Committee hopes that some means may be devised whereby there may be more harmonious action between this society and the Illinois State Board of Health. This is not offered as a criticism, but as a suggestion, inasmuch as the disharmony seems more apparent than real.

Respectfully submitted,

DR. FRANK P. NORBURY, *Chairman.*

DR. J. F. PERCY.

DR. CHARLES L. MIX.

On motion the report was adopted.

Secretary Weis read a communication concerning a bill on the sterilization of habitual criminals.

CHICAGO, April 22, 1909.

Dr. E. W. Weis, Secretary Illinois State Medical Society:

Dear Doctor:—The sterilization by vasectomy of confirmed criminals and other defectives legalized in Indiana two years ago and recently in Oregon also, is attracting widespread attention.

For obvious reasons the public looks to the medical profession for advice about accepting this measure. Every medical society to which it has been presented has passed a resolution approving such sterilization and recommending to the legislature of its state the enactment of the Indiana law or its equivalent.

May I presume to suggest that this matter might properly be presented for discussion to your society at its coming meeting? Respectfully,

WM. T. BELFIELD.

It was moved and seconded that the House of Delegates approve this bill that was introduced in the Senate by Senator J. A. Womack and that we send a communication to Dr. J. A. Womack of the approval of this society. Motion carried.

After a lengthy discussion by various delegates touching the matter of the arranging the programs of the different sections so that all may be present and enjoy the benefits of each department, it was moved by Dr. Frank Billings that the Chair appoint three members to consider the suggestions of the secretary to act with the Committee on Scientific Work and to report to this House at a subsequent meeting of this session. Motion carried.

The Chair appointed Dr. Frank Billings, S. E. Munson and Frank P. Norbury.

Secretary Weis read letters from Dr. F. R. Green as follows:

DR. E. W. WEIS, Secretary Illinois State Medical Society, Ottawa, Ill.

Dear Doctor: I am enclosing herewith an official communication which I am sending to you at the request of Maj. M. W. Ireland of the United States Army. Chairman of the Committee on the Relief of Major Carroll's widow and family. I am also enclosing reprints of the editorial and appeal which appeared in THE JOURNAL for April 3, and hope that you can bring this matter to the attention of your state association at its annual meeting for such action as your members may see fit to take.

Very truly yours,

FREDERICK R. GREEN.

DR. E. W. WEIS, Secretary Illinois State Medical Society, Ottawa, Ill.

Dear Doctor:—The following resolution was adopted by the Legislative Council of the American Medical Association at its meeting in Washington in January:

Your Committee on Uniform Regulation of the Practice of Medicine, to whom, as a special committee, was referred the matter concerning the conditions under which the widow of Dr. James Carroll, Major and Surgeon, U. S. Army, is suffering, beg to premise a resolution which they will offer, by the statement:

That at the death of Major Carroll his estate became possessed of a home purchased for \$9,500, upon which a trust of \$5,000 and a second mortgage of \$4,000 rested. Two thousand and one hundred dollars of said mortgage has been paid by Major Carroll and his widow in monthly installments of \$50 each. She is sorely pressed for these payments, as she is compelled to provide from the remainder of her monthly pension (\$75) the means of sustenance, the interest on the first mortgage of \$5,000 (\$250), and taxes on, and repairs to, the home. Mrs. Carroll has herself, seven minor children and Major Carroll's mother to provide for, a task, it will be perceived, enough for the strongest heart. She, herself, is in a condition of nervous collapse in consequence, and the danger of losing her home is at hand, and for this reason this matter is brought to your attention. The suggestion has been made that the physicians of the service and of the District of Columbia be appealed to to temporarily provide the means, and, as a loan only, to assume the payment of the monies coming due, monthly and semi-monthly.

That the Committee on Medical Legislation of the American Medical Association bring to the House of Delegates of the A. M. A. the distress which has been *temporarily*, because of the urgency involved, placed upon the profession of the Government Medical Services and the District Medical Society, and respectfully ask that relief be found for this temporary loan and for a permanent lifting of the burden from the shoulders of the widow of Major James Carroll.

That all monies paid by whatever means be a mortgage upon the property, held by the A. M. A. during the lifetime of Mrs. James Carroll and either paid for in small instalments by the said widow or held by the Association as a sacred trust forever.

We, your committee, therefore respectfully submit the subjoined resolution:

Resolved, That a committee composed of one member of the Army Medical Department, one of the Navy Medical Department, one of the Public Health and Marine-Hospital Service, and one member of the District of Columbia Medical Society, *members of this council*, be named by the chairman and instructed to present to the different medical services of the Government of the District of

Columbia the conditions of distress under which the widow of Major James Carroll is placed, and suggest or help to devise such plan and action as may speedily bring relief.

A. S. VON MANSFELDE, Chairman,

J. E. McDONALD,

JAS. T. GREELEY.

The chair appointed as a committee: Dr. A. S. von Mansfelde, of Nebraska; Major M. W. Ireland, U. S. Army; Surgeon W. H. Bell, U. S. Navy; Surgeon John F. Anderson, Public Health and Marine-Hospital Service, and Dr. John D. Thomas, District of Columbia.

The members of the public services and the profession of the District of Columbia met the call for contributions to meet this emergency in a commendable manner, the Army contributing \$1,500, the Navy \$400, the Public Health and Marine-Hospital Service \$300 and the District of Columbia over \$200.

It is, of course, well known that Dr. Carroll was the second member of the commission that made the investigation in Cuba which resulted in the demonstration that yellow fever is transmitted by a species of mosquito. He entered the military service in June, 1874, and served as a private, corporal, sergeant and hospital steward, from that date to May, 1898, when he was appointed Assistant Surgeon in the Medical Corps of the army in October, 1902, and advanced to the rank of major by a special act of Congress, approved March 2, 1907. He was the first experimental case of yellow fever, and suffered a severe attack, to which he attributed a heart trouble which finally caused his death in September, 1907. At the time of undergoing this experiment he was 46 years old, an age at which the risk from this disease is very great, as its mortality rapidly increases with the age of the patient. He, at that time, had a wife and five children who had no other means of support except his pay as an acting assistant surgeon.

It is believed the profession should, by their contributions, save the home of the widow of this medical hero, whose self-sacrifice contributed so greatly towards the control of yellow fever, thereby saving thousands of lives and the expenditure of millions of capital.

I earnestly appeal to you to bring this matter before the members of your state society at the coming meeting. Any contributions should be sent to Major M. W. Ireland, Medical Corps, U. S. Army, War Department, Washington, D. C., and will be acknowledged in the weekly publications of *The Journal of the American Medical Association*. Very truly yours,

FREDERICK GREEN,

Secretary Committee on Medical Legislation.

A full discussion was had upon the subject-matter of the communication, after which the following motion was made and carried:

Moved that the House of Delegates recommend that the Council appropriate in money of the Illinois State Medical Society \$500.00 to this the Major Carroll's widow American Medical Association mortgage fund.

Dr. Frank Billings read a similar communication in behalf of John R. Kissinger, of South Bend, Ind., and moved an amendment to the above recommendation increasing the appropriation to \$600.00, \$100.00 of which is to be paid to Kissinger. The amendment was accepted and the motion carried.

John R. Kissinger, of South Bend, Ind., a private in the United States Army during the Spanish-American War, was the first volunteer to offer himself as a patient in the test to attempt to prove the theory of the transmission of yellow fever by the *Stegomyia* mosquito. Knowing the danger to which he subjected himself and the probability of a fatal termination, he still refused any pecuniary compensation on the ground that he offered his services in the interest of science and humanity.

This act exhibited a moral courage which has never been surpassed in the United States Army. In the experiment, Kissinger was bitten by an infected mosquito and in consequence suffered from an attack of yellow fever from which he nearly lost his life.

As a result of this experiment and of others of like character, the fact that yellow fever is conveyed from one person to another by the infected mosquito was proved, and the whole world is now familiar with the result of the investigation of which the voluntary act of Kissinger forms a part.

After a year or two Kissinger left the army, married and settled in Indiana. About six years ago he developed a disease of the spinal cord which deprived him of the use of his lower limbs and kept him confined to a wheel chair. He can not recover and may live for some time. His wife attempts to support him and herself but is hampered in her efforts by the helplessness of her husband, for whom she must care. For some time she did laundry work and he was able to help her by turning the wringer as he sat in the chair, but he is now too feeble to perform even that act. The physician in charge of Mr. Kissinger writes that he is gradually losing ground. Now he is bedfast, the digestion is poor and he has but little control of the bowels. The doctor says he never will become better. He is a great care to his wife, who is obliged to rise at 5 o'clock in the morning and to travel two miles to work as a janitress in the postoffice building for a part of the day. The remainder of the day she gives to her husband and does laundry work for her neighbors in the afternoon.

He receives twelve dollars a month pension. That, with her work, is their whole income. His mind seems clear, but he is very nervous because he is obliged to remain confined to the bed.

Money that was furnished these people two years ago has about become exhausted and it will be necessary that money be donated to them to enable Mr. and Mrs. Kissinger to subsist.

Many delegates expressed their intention to contribute personally to these funds.

On motion the House adjourned until 4 o'clock Wednesday afternoon.

WEDNESDAY, MAY 19, 1909.

House of Delegates convened pursuant to adjournment, President J. W. Pettit presiding. Upon roll call Secretary Weis announced a quorum present. Upon motion the reading of the minutes of the previous meeting was waived. Upon motion the following counties were declared represented: Warren, Stark, La Salle, Jackson, Pike and Randolph.

Chairman Harold N. Moyer, of the Medicolegal Committee, presented an exhaustive report of the work done by his committee during the past year. He presented in detail the status of every case under consideration, and further stated that for the present and perhaps next year no change would be necessary for the carrying on of the work of this committee, but that in the near future it will be found that \$1.00 per capita will not be sufficient to carry on this work successfully.

Dr. Noble spoke of the splendid work done by Dr. Moyer and that it is eminently proper that the House of Delegates extend a vote of thanks to him for the efficient work done on this committee and moved the adoption of the report and a concurrence in his suggestions. Motion carried.

TREASURER'S REPORT.

May 19, 1908, to May 19, 1909.

RECEIPTS.

Balance, May 19, 1908.....	\$224.27
June 24, 1908, from Dr. E. J. Brown, Treasurer.....	1,500.00
Jan. 13, 1909, from Dr. E. J. Brown, Treasurer.....	1,500.00
May 12, 1909, from Dr. U. G. Darling.....	25.00
May 12, 1909, from Dr. R. S. Gregg.....	3.00
	<hr/>
	\$3,252.27

DISBURSEMENTS.

General Counsel	\$1,330.10
Attorneys' fees	895.00
Stenographer	240.00
Exchange on checks.....	2.20
Postage	4.00
Stationery and printing.....	24.75
Books, "Taylor Law".....	6.00
Expenses, expert witnesses.....	36.73
	<hr/>
	\$2,538.78
	<hr/>
Balance	\$713.49

ITEMIZED STATEMENT OF DISBURSEMENTS.

May 19, 1908, to May 19, 1909.

GENERAL COUNSEL.

Dec. 1, 1907, to Dec. 1, '08..	\$1,000.00
Jan. 9, 1908.....	25.00
Jan. 22, 1908.....	25.00
Jan. 22, 1908.....	25.00
May 4, 1908.....	25.00
Dec. 19, '07, to May 21, '08..	100.00
July 15, 1908.....	25.00
Nov. 17, 1908.....	25.00
Dec. 8, 1908.....	25.00
Dec. 18, 1907.....	10.00
Dec. 18, 1907.....	16.00
Jan. 16, 1908.....	2.50
Jan. 17, 1908.....	.75
Feb. 3, 1908.....	3.00
Feb. 14, 1908.....	.10
Mar. 28, 1908.....	5.00
May 8, 1908.....	8.40
June 16, 1908.....	.10
Oct. 6, 1908.....	3.00
Nov. 2, 1908.....	3.00
Nov. 11, 1908.....	3.00
Nov. 12, 1908.....	.25
Total	<hr/>
	\$1,330.10

POSTAGE.

Sept. 19, 1908.....	\$2.00
Feb. 13, 1909.....	2.00
Total	<hr/>
	\$4.00

STATIONERY AND PRINTING.

Dec. 15, 1908.....	\$24.00
Feb. 13, 1909.....	.75
Total	<hr/>
	\$24.75

EXPENSE EXPERT WITNESSES.

April 24, 1909.....	\$22.50
April 30, 1909.....	14.23
Total	<hr/>
	\$36.73

ATTORNEY'S FEES.

June 4, 1908.....	\$75.00
June 24, 1908.....	220.00
Nov. 15, 1908.....	500.00
Feb. 2, 1909.....	100.00
Total	<hr/>
	\$895.00

STENOGRAPHER.

June 13, 1908.....	\$20.00
July 22, 1908.....	20.00
Aug. 7, 1908.....	20.00
Sept. 19, 1908.....	20.00
Oct. 17, 1908.....	20.00
Nov. 17, 1908.....	20.00
Dec. 15, 1908.....	20.00
Jan. 19, 1909.....	20.00
Feb. 13, 1909.....	20.00
Mar. 22, 1909.....	20.00
Apr. 16, 1909.....	20.00
May 12, 1909.....	20.00
Total	<hr/>
	\$240.00

EXCHANGE.

Aug. 7, 1908.....	1.10
Jan. 13, 1909.....	1.10
Total	<hr/>
	\$2.20

BOOKS—"TAYLOR LAW."

Feb. 10, 1909.....	\$6.00
--------------------	--------

H. N. MOYER, Treasurer.

Chair called for report of Committee on Public Policy. Dr. Carl E. Black reported the committee had had no meeting and had done no business so far as he knew.

Dr. L. C. Taylor read the report of the Committee on Medical Legislation.

REPORT OF COMMITTEE ON MEDICAL LEGISLATION.

The model Vital Statistics Bill or a modification of the same agreed upon by the State Board of Health and Dr. C. S. Bacon, member of the national committee, was acted upon adversely by the committee of the house to which it was referred. There exists a bitter prejudice in the minds of many of our legislators against the compulsory burial permit clause, owing to the inconvenience imposed upon those living at a distance from the attending physician, and we fear it will be some time before that feature of the national bill will become a law in this state. This fact places Illinois out of the registration area of the government mortality statistics.

Senate bill No. 405, for an act to regulate the practice of optometry in the state of Illinois, is on order of second reading in the Senate and on third reading in the House. Practically the same bill was passed by the legislature two years ago and vetoed by the governor. What the fate of this bill will be is yet in doubt.

House bill No. 582, for an act to regulate the practice of non-medical healing in the state of Illinois, was referred to the Committee on Sanitary Affairs, where it will probably remain for this session.

The most bitter fight that has been made during this session is in regard to what is now known as Senate bill No. 214, for an act to regulate the practice of osteopathy in the state of Illinois. This bill passed the Senate by a bare majority and was amended in the judiciary committee of the House by striking out the minor surgery clause and in a few other unimportant particulars. The contagious disease feature being retained makes it the most objectionable section of the bill, as it will be used as a license for the administration of drugs, and will practically establish two standards of medical education in the state. That the osteopaths realized the benefits of the minor surgery clause by the broad construction which it would admit of, is best proven by the strenuous efforts made by them to have it retained.

While the organization of an auxiliary legislative committee upon the lines recommended two years ago at the Rockford meeting has been of great benefit in carrying on our work, we find that if we are to make our influence effective it must be by providing some means to put into the hands of all members of the state medical society information in regard to providing legislation which will enable them to intelligently discuss the bill under consideration. Copies of bills sufficient for this purpose are not furnished by the state, and it appears that this must be done through the journal of the society, or a bureau should be established to supply this information. If members of the auxiliary committee approach their representatives it is but natural for them to be asked to state their objections to any proposed legislation. We therefore urge that this matter be considered by the society in order that the medical profession may make its influence felt in matters appertaining to their interests.

L. C. TAYLOR, Chairman.
M. S. MARCY,
J. V. FOWLER.

It was moved and seconded that the report be received and that a vote of thanks be extended Dr. Taylor for his able work done on this committee. Motion carried.

Dr. J. W. Pettit, before putting the motion, urged that the campaign against undesirable legislation be waged at the very beginning

and not delay it until the bills have gotten out of the committees; by so doing a great deal of hard work would be avoided. He also asked the active cooperation of the coordinate branches of medicine—the doctors, the dentists, the pharmacists and the nurses—thus forming a more powerful political unit. Also recommending a paid representative of the societies at Springfield to be paid by the four bodies mentioned.

Dr. Lovewell, of the Secretaries' Conference Committee, reported as follows:

MAY 20, 1909.

To the Members of the House of Delegates, Illinois State Medical Society:

The third annual conference of the secretaries of the component county societies has just adjourned. The conference was the guest of the members of the Council at a dinner given in the Masonic Hall. Between seventy and eighty were in attendance. The following program was given: "The Man Who Should Be Secretary," John B. Donaldson, Canonsburg, Pa.; "Suggestions from the State Secretary," E. W. Weis, Ottawa, Ill.; "Bookkeeping of the County Secretary," A. J. Roberts, Ottawa, Ill.; "Business Methods in Medical Organizations," F. R. Green, Chicago.

The following motions prevailed: First, to appoint a committee of three to confer with the State Secretary in regard to the advisability of adopting uniform blanks for county secretaries. Second, to arrange with the editor of THE JOURNAL for the use of a page in each issue of THE JOURNAL to be known as the Secretary's Page. Respectfully submitted,

C. HUBART LOVEWELL, President.

On motion the report was received.

Dr. Carl E. Blaik, chairman, made the following Council report:

REPORT OF COUNCIL.

QUINCY, Ill., May 18, 1909.

To the Members of the House of Delegates, Illinois State Medical Society, Gentlemen:—In accordance with the instructions and by-laws of the Illinois State Medical Society, it becomes my official duty, as chairman of the Judicial Council, to report the work done during the interim since our last annual meeting.

The Council has held three meetings during the year, one in September, one in November and one in March. All of these meetings were held in Chicago. The report this year will be brief, as the work before the Council has been, with one or two exceptions, attentioned to matters of routine. There have been charges filed with the Council in but one case, and no trials held, or special difficulties with which the Council has had to contend.

LOCAL SOCIETIES.

In the main, the county societies have been at work. There are a few exceptions to this rule. Several societies were found to exist in name only, and in two instances it was necessary to effect a reorganization. All of the weak societies have been visited by both the president and the district councilor and encouraged to take up active work. In two instances local societies in adjoining counties have been combined into one active organization.

This year the councilors made a special effort to get together at a luncheon the secretaries of every county society in the state. It was believed that if we could get the secretaries together and have a good heart to heart talk about the work it would greatly stimulate future efforts in county societies. It can not be too strongly impressed upon the members that the success of a county society is more dependent upon a good secretary than upon all other officers put together. There is nothing which will bring up a society like prompt and complete notices of meetings, good programs, which do not fail, and the appointment of leaders who will be present and lead. A secretary who has an active solicitude for the

life and interest of the society will soon find himself the secretary of a good society and one which is doing regular, systematic and efficient work.

MEMBERSHIP.

As has already been reported in detail by the secretary, our membership has again shown a large and substantial gain. Over seven hundred new names have been added to the rolls of the component societies during the year. This is partly due to natural growth, but largely to the personal work of your president, who has visited seventy-five county societies, and to the visits and work of the individual councilor, in conjunction with the local county officers.

COUNCILOR REPORTS.

On account of some incompleteness in the reports of councilors, which in turn is due to incompleteness in the reports which they should have received from the County Secretary, it is impossible to present a detailed and statistical report. The reports from each county society should reach the councilor soon after the first of January each year and should contain complete information for the year to December 31. If these reports are sent in promptly and are as complete as the blank furnished provides, there will be no difficulty in furnishing the society each year with a complete historical and statistical résumé of the work of the whole state. This is dependent on the secretaries of the county societies.

Several societies believe that it would be wise for each county society to recognize the services of the secretary in some substantial way.

THE JOURNAL.

As you all know, THE JOURNAL has appeared regularly every month during the year and has usually reached you within the first week of each month. From the various sources from which we have received information we believe that THE JOURNAL has been satisfactory to the members, as will be shown by the detailed report of the editor. You will see that a larger number of pages of reading matter have been printed than ever before. The report of the editor, Dr. Geo. N. Kreider, was published in THE JOURNAL up to Jan. 1, 1909.

Last year the Council called your attention to the fact that we would suggest your serious consideration of the feasibility of converting the ILLINOIS STATE MEDICAL JOURNAL into a weekly or semi-monthly publication. While this matter is in the hands of the Council, we desire expression and instruction from the House of Delegates wherever they can give them.

JOURNAL ADVERTISING.

The approximate amount of current contracts for advertising in THE JOURNAL is \$5,000. Of this amount \$2,300 represents new business obtained and the balance is for continued renewals. During the past year \$30 represents the amount lost in bad accounts. Of the bills now due we estimate all are collectable.

DIRECTORY.

We believe that a complete directory of our membership should be published and presented to our members. Such a directory should contain all the necessary information regarding local societies and members and would be found very useful to every one. There is a plan under consideration by which this can be made complete and yet the expense will not be large.

TIME OF MEETING.

Since coming to Quincy we have heard considerable discussion of the question of the time of meeting. There are many men who remain at home because they do not feel like giving up the time to go to both the state and national society when they occur so close together. We call your attention to this matter in order that you may consider the advisability of changing our date of meeting from May to the latter part of October.

TREASURER'S REPORT.

The report of the treasurer this year is more satisfactory than ever before. After paying all of our bills up to the end of our fiscal year, which is December 31, 1908, the society had a comfortable balance in the bank. The detailed report of the treasurer will appear in *THE JOURNAL*, so that every member can be familiar with our financial standing.

Receipts, all sources.....	\$20,431.09
Disbursements	10,571.90
	<hr/>
Balance on hand, Jan. 1, 1909.....	\$9,859.19

This balance, of course, does not represent an actual cash balance. The annual bills must be paid out of this amount, but even after these are paid there will still be a balance of several hundred dollars to our credit.

CARL E. BLACK, Chairman.

It was moved that the report be received and the recommendations so far as possible be concurred in. Carried.

The question of the advisability of the annual meeting of the State Society to take place in the fall of the year, instead of the spring, now came up. It was fully discussed pro and con by Drs. Munson, Grinstead, Stubbs, Pitner, Weis, Armstrong, Kreider, Black, Lovewell and others. Upon a motion to make the necessary change, it was declared lost.

Dr. John T. McAnally offered the following resolution:

Resolved, That the president of this society be authorized to appoint a Committee on Ophthalmia Neonatorum, which, acting under the direction of the national committee, shall cooperate with the State Board of Health, health officers and the county medical societies of this state for the suppression of this disease.

Adopted.

The Chair appointed as such committee Drs. E. V. L. Brown, William L. Noble and Willis O. Nance.

Dr J. E. Stubbs offered the following resolution:

WHEREAS, We appreciate the rational crusade against the venereal plague which has been inaugurated in the United States, and wish to cooperate in every way in our power in all efforts to limit disease, to diffuse scientific knowledge, and to increase general healthfulness and happiness; be it

Resolved, That we favor in the Illinois State Medical Society the appointment of a special committee on venereal prophylaxis which shall direct an active and vigorous campaign against the spread of venereal diseases, and shall report annually to this society regarding legislative, educational, restrictive, preventive and therapeutic means best calculated to limit these diseases.

Resolved, That we recommend the appointment of a similar committee by every county medical society which, in harmony with the committee of the state society, shall act for the best interests of the community, in reference to prophylaxis, as mature deliberation shall determine to be most desirable.

Resolved, That while deprecating the sensational and alarming statements promulgated by the mercenary charlatan, we favor an educational propaganda which shall teach the truth, and that we advise in every community increased facilities for gratuitous treatment of all venereal patients.

Resolved, That in lieu of all present laws against "obscene" literature, we favor that the young be safeguarded against corrupting information by laws which shall put the postal matter of the immature wholly within the control of parents or guardians. We favor such other proper legislation, having application only to the immature, which shall be so definite in meaning that there will be no doubt as to what is prohibited, and which will not preclude any adult from acquiring full and complete information regarding all scientific subjects.

It was moved that the House concur in and adopt the resolution which was passed at Rockford in 1907. The same was adopted.

The Chair appointed as such committee Drs. J. E. Stubbs, William L. Baum and R. R. Campbell.

Dr. E. W. Weis offered the following resolution:

Resolved, That the Illinois State Medical Society is pleased to continue the friendly relations which have always existed towards the Illinois State Dental Association.

Resolved, That a committee of the Council confer with the State Pharmacy Association and the State Nurses Association and establish friendly relations with these bodies.

Resolved, That the Council be empowered to have charge of such details as may be necessary to make these alliances effective for political purposes.

Adopted.

A motion was made that this House recommend to the Council that an honorarium of \$100.00 be paid Dr. L. C. Taylor for his work done at Springfield and for his personal sacrifice made. Carried.

Dr. J. H. Rice moved that the House adjourn to meet at 8:30 tomorrow morning. Carried.

THURSDAY, MAY 20, 1909.

The House of Delegates met pursuant to adjournment. Quorum present. The minutes of the preceding day are read and approved.

The time now having arrived where the next order of business must be the election of officers, Dr. J. H. Rice, of Quincy, placed in nomination for president Dr. L. H. A. Nickerson, of Quincy, and Dr. C. W. Lillie placed in nomination Dr. J. L. Wiggins, of East St. Louis.

It was moved that the Chair appoint three tellers for the election of officers. Motion carried and the Chair appointed Drs. E. W. Weis, L. C. Taylor and C. H. Lovewell.

The House proceeded to vote by ballot for president, and Secretary Weis announced the total number voting to be 83, of which Dr. J. L. Wiggins received 51 and Dr. L. H. A. Nickerson 32. Dr. J. L. Wiggins was declared elected president for the ensuing year.

C. U. Collins, of Peoria, was placed in nomination for first vice-president, and, there being no other nomination, the secretary, on motion adopted, cast the unanimous vote of the House for Dr. C. U. Collins, and he is declared elected.

Dr. J. E. Stubbs, of Chicago, being the only nominee for second vice-president, the secretary, on motion adopted, cast the unanimous vote of the House for Dr. J. E. Stubbs, and he is declared elected.

Dr. E. J. Brown, being the only nominee for treasurer, the secretary, on motion adopted, cast the unanimous vote of the house for Dr. E. J. Brown, and he is declared elected.

Dr. E. W. Weis, being the only nominee for secretary, the chairman, on motion adopted, cast the unanimous vote of the house for Dr. E. W. Weis, and he is declared elected.

Dr. Carl E. Black, being the only nominee for councilor for the Sixth District, the secretary, on motion adopted, cast the unanimous vote of the house for Dr. Black, and he is declared elected.

Dr. H. C. Mitchell, being the only nominee for councilor for the Ninth District, the secretary, on motion adopted, cast the unanimous vote of the house for Dr. H. C. Mitchell, and he is declared elected.

For councilor for the Third District Dr. M. L. Harris and Dr. Frederick Tice were placed in nomination and the house preceded to vote by ballot. Total number of votes cast 83, of which Dr. Harris received 49 and Dr. Tice 34. Dr. Harris, having received the most votes, is declared elected.

The secretary presented the resignation of Dr. C. C. Hunt, councilor of the Second District, and read a letter from Dr. Hunt, in which he desired to place in nomination as his successor the name of Dr. J. W. Pettit. On motion the secretary was instructed to cast the vote for Dr. J. W. Pettit and he was elected.

Dr. George De Tarnowsky placed in nomination Drs. Frank Billings and C. S. Bacon of Chicago as delegates to the American Medical Association.

Drs. William L. Noble, E. M. Webster, J. W. Pettit, S. C. Stremmel and A. C. Haven were also placed in nomination as candidates. The house proceeded to vote by ballot for delegates to the American Medical Association. Drs. Billings, Bacon and Pettit, having received the highest number of votes, were declared elected.

ALTERNATES.

There being seven alternates to be chosen and there being but seven nominees, the secretary, on motion adopted, cast the unanimous vote of the house for Drs. S. C. Stremmel of Macomb, C. E. Price of Robinson, W. K. Newcomb of Champaign, J. R. Hollowbush of Rock Island, T. P. Yerkes of Alton, E. W. Ryerson of Chicago, and A. C. Haven of Lake Forest, and they are declared elected.

COMMITTEE ON PUBLIC POLICY.

Drs. R. B. Preble of Chicago, C. E. Black of Jacksonville and William L. Baum of Chicago were nominated as a Committee on Public Policy, and the secretary, on motion adopted, cast the unanimous vote of the house for Drs. Preble, Black and Baum, and they are declared elected.

COMMITTEE ON MEDICAL LEGISLATION.

Drs. C. J. Whalen, M. S. Marcy, L. C. Taylor of Chicago, Peoria and Springfield, respectively, were placed in nomination as members of the above named committee, and the secretary, on motion adopted, cast the unanimous vote of the house for the above named persons, and they are declared elected.

COMMITTEE ON MEDICAL EDUCATION.

There being only one to be elected at this session, Dr. E. W. Ryerson, being the only nominee, the secretary, on motion adopted, cast the unanimous vote of the house for Dr. Ryerson, and he is declared elected. (This full committee now is Roxbury, Percy and Ryerson.)

MEDICO-LEGAL COMMITTEE.

There being only one to be elected at this session, and Dr. Harold N. Moyer being the only nominee, the secretary, on motion adopted, cast the unanimous vote of the house for Dr. Moyer, and he is declared elected.

The place of meeting was the next consideration to come before the house and Dr. E. B. Cooley of Danville moved that Danville be chosen as the place to hold the next meeting of the Illinois State Medical Society.

Dr. J. W. McDonald placed the name of Aurora, Ill., before the house for consideration and vote by ballot. Danville received 52 votes and Aurora 19. Danville was declared the place to hold said meeting.

Dr. Frank Billings made a report of the committee appointed to confer with the Scientific Committee on Program.

REPORT OF SPECIAL COMMITTEE BY DR. BILLINGS.

Your special committee appointed to confer with the Committee on Scientific Program, consisting of Drs. Norbury, Munson and myself, met with the Scientific Program Committee and discussed the question of the program for next year and also the question of the relation of the business meeting and the scientific sessions.

The committee was unanimous in its report.

First.—That we recommend to the House of Delegates that the meeting hereafter be but two days—Tuesday and Wednesday.

Second.—That the House of Delegates be convened on Monday evening at 8 o'clock preceding these two days, with stated meetings running from 8 to 9 o'clock on Tuesday and Wednesday, the scientific meetings to be held from 9 o'clock onward on each day.

Third.—We recommend to the House of Delegates that the Scientific Committee hereafter prepare a so-called mixed program, that is, medical papers and surgical papers so arranged that it will offer an interesting program to the society.

The committee to consist, as heretofore, of the chairman of the surgical department and its secretary and the chairman of the medical department and its secretary, and the president and secretary.

The meeting to be but two days, Tuesday and Wednesday, for scientific work.

The House to convene at 8 o'clock, first session Monday evening; the other two set meetings at 8 to 9 o'clock on Tuesday and Wednesday, in the morning.

That the scientific program go on from 9 o'clock, the program to be a mixed one.

A motion to adopt the report of the committee and concurrence in its recommendation was made and seconded.

It was suggested that to adopt the report would necessitate a change in the by-laws, but were it made to read Tuesday, Wednesday and Thursday that would be avoided. The report was amended by Dr. Billings to conform to the by-laws and was then adopted, as follows:

The House of Delegates to convene on Tuesday, at 8 p. m., with stated meetings also on Wednesday and from 8 to 9 p. m. The scientific meetings to be held on Wednesday and Thursday only, beginning at 9 a. m.

On motion report was adopted and recommendations concurred in.

Dr. William L. Noble made a motion in writing as follows:

Resolved, That the House of Delegates of the Illinois State Medical Society, representing 6,000 physicians of Illinois, does hereby protest against the passage of House Bill No. 576, Senate Bill No. 405, known as the "Optometry Bill," and urges the various members of the legislature to vote against same and to use their influence in bringing about its defeat.

Resolved, That the secretary of this society be directed to advise the members of the legislature of this action.

Dated at Quincy, Ill., May 20, 1909.

W. L. NOBLE.

Carried.

Dr. J. E. Stubbs of Chicago moved that in the future no man shall be seated as a delegate unless he presents his credentials properly attested and that the by-laws and constitution be strictly adhered to in the future. On motion adopted.

Dr. E. W. Weis moved that the per capita tax remain the same as last year. Motion carried.

Dr. J. E. Stubbs moved that the House of Delegates recommend to the Council the appropriation of the amount of \$300 to be drawn against by the president toward defraying his expenses and the accounts to be audited. The motion was put and carried.

Dr. R. J. Christie made a practical report of finances of the Committee on Arrangements

On motion the report was received.

Dr. Kreider offered the following resolutions, which were, on motion, adopted.

The House of Delegates of the Illinois State Medical Society, in Session at Quincy the 20th day of May, A. D. 1909, unanimously adopted the following:

Resolved, That the Illinois State Medical Society return thanks to the medical profession and citizens of Quincy for the complete arrangements made for the meetings and the excellent entertainment provided for our members.

The House of Delegates of the Illinois State Medical Society, in session at Quincy the 20th day of May, A. D. 1909, unanimously adopted the following:

Resolved, That we return thanks to the Trustees of the Vermont Street Methodist Church for the use of their beautiful church building.

Dr. J. F. Percy of Galesburg offered the following resolution:

Resolved, That this House of Delegates of the Illinois State Medical Society, in annual session assembled, extend to our colleague, Dr. Joseph Robbins, of Quincy, its sincere sympathy in this his time of distress and suffering.

We wish by these resolutions to have him know that as a state organization and as individuals we have not forgotten him. That we remember with appreciation and pride his very great service to this society and its component branch, the Adams County Medical Society. That we are grateful for what he has given to the state of Illinois in the way of professional service and skill while in charge of one of its great institutions; above all, we admire his character and his loyalty to the highest ideals of our profession. With this extension of our sympathy goes the hope that he may be given the greatest relief possible from his sufferings.

Resolved, That a copy of this resolution be sent to Dr. Robbins by Secretary Weis.

Meeting adjourned *sine die*.

EDMUND W. WEIS, Secretary.

SECRETARIES' CONFERENCE.

The third secretaries' conference convened in the Masonic Hall, Quincy, Illinois, May 19, 1909, at 12 m. Luncheon was provided by the members of the Council of the Illinois State Medical Society.

Dr. Carl E. Black, of Jacksonville, chairman of the Council, stated that the dinner was an attempt on the part of the Council to show their appreciation of the importance of the work of this conference.

In the necessary absence of President Pettit, Dr. J. L. Wiggins, of East St. Louis, vice-president, said that, while Dr. Pettit was absent in person, he was present in spirit. It was unfortunate that Dr. Pettit was absent, because he had been in close touch with the organization of the state and with the work of the secretaries. He thanked the members of the conference for the courtesy extended to him, and said the first state society meeting that he attended did not exceed in numbers the number of representatives present at this conference representing the county societies. The county secretaries were a moving force, and he knew that great good would be accomplished by this conference.

The conference was then called to order by the president, Dr. C. Hubart Lovewell, of Chicago, who responded briefly to the remarks of the previous speakers, and then introduced as the first speaker Dr. John B. Donaldson, of Canonsburg, Pa., who, as the father of the secretaries' conference movement, was received with great applause and addressed the meeting on the subject, "The Man Who Should Be Secretary."

The following papers were also read:

"Suggestions from the State Secretary," by Dr. E. W. Weis, of Ottawa.

"Bookkeeping of the County Secretary," by Dr. A. J. Roberts, of Ottawa.

"Business Methods in Medical Organizations," by Dr. Frederick R. Green, of Chicago.

Quite a number of reports were then received from different secretaries throughout the state, showing increased enthusiasm and good work accomplished by the secretaries.

At the conclusion of the program, a short business session was held. Drs. Roberts, Flint and Feigenbaum were appointed a committee to confer with the Council for uniform blanks for the use of secretaries. A vote of thanks was extended to the Council and to Dr. Donaldson for their good-will and help.

The following officers for the ensuing year were elected: President, Dr. C. Hubart Lovewell, Chicago; vice-president, Dr. Marion K. Bowles, Joliet; secretary and treasurer, Dr. D. G. Smith, Elizabeth. It was decided by the conference that a page or more in the ILLINOIS STATE MEDICAL JOURNAL be set aside for the secretaries' work, and Dr. Lovewell was elected to look after this part.

D. G. SMITH, Secretary.

THE MAN WHO WOULD BE SECRETARY (OR SHOULD BE).

JOHN B. DONALDSON, M.D.

CANONSBURG, PA.

For a number of years I have had decided ideas as to the man who should be secretary. I have expressed them so vehemently and frequently that I am very liable to repeat myself, but will try not to bore you. I said at Columbus, Ohio, that I would rather be secretary of a county society than be president of the A. M. A. I see no reason to change my mind. There is a more intimate relationship and chance to help your fellow practitioners as secretary than as presi-

dent with his one year's tenure of office that carries with it nothing but the great honor. I also said that anything will do to make a president of a county society but not so as to the secretary. He must be the most alive and active man in the society, or God pity the society, for it is just what he sees fit to make it. I want to state now that all my remarks as to county societies are intended to apply more particularly to the rural counties. The city society is not in the same class. I am not able to give any reason for this assertion. Why they should be different I can not explain. A city is nothing but a large village, but some way they assume to greater things and often fall far short of doing them. The city is made up of country boys; as soon as they hang out their shingle they are a changed lot and must not do the things they did back in the village. They can see nothing worth while in the things they did while in the country, and the same thing applies to the city society. In no case must they do the same things the country society does. In other words, you can not *tell* them anything. Some of the best friends I have are in the cities of my state but I learned long ago to let them do the talking. In the city the men are closer together, can talk it over more frequently, and thus the secretary can know what his men want and need better than can the secretary of a strictly rural county or one made up of a number of small towns.

The man who would be secretary of a country medical society is an isolated being as a rule who must do things himself. He can not know except by intuition what the rest want but must anticipate and make the path plain. He should have years of training as to what physicians are made of, for it often appears to me that they are not made from the same clay as are the rest of mankind. At all events they do not think along the same lines, consequently do not arrive at the same conclusion as do other mortals. They are not trained to think at all, except along medical lines, and consequently are not business men in any sense of the word. A merchant as a secretary of a county medical society would be as much out of place as the proverbial "hog in heaven." But it is not often you can get a man with this long experience to accept the office of secretary. He is, or rather he thinks he is, too busy to do such trivial work. My opinion of the "too busy man" is that he is either a member of the Ananias Club or he don't know how to systematize his work, which is about as bad.

Some men could never be secretary because they can not write. It is a surprising thing to me the number of doctors that can not write. At least they will not answer a letter. Now it is plain that a doctor who can not write could never be a secretary. Then there is the doctor who has no taste for such work. This same fellow can go down to the drug store and loaf by the hour or play dominoes at the club half the night; he has no taste for any work that will not only help him but would be of infinite assistance to his fellow practitioners. In fact, this is one of the pleasant things about being a secretary. To feel that you are of real use, and then keep at it till you are just about indispensable to the society is certainly worth while. It is you that must think society every day in the month. You must keep ever in mind that it is your province to keep the rest awake to their best interests.

The average member does not think of his society, except when he gets his notice, and then he frequently forgets it and does not go. It is frequently surprising, though, how some of these very members will want to run things when they do happen to go to the society. They are the kind that will want to shape the policy of the society and will have following enough to make it worth while to study him.

The man who should be secretary must study human nature, and I know of no place where he can have a better chance. Every kind of disposition on earth will be on his list. The lazy man is an abomination but you must keep him stirred up to think he is a jewel. The busy man about society matters must be cared for or he will begin to foment trouble for everybody. Keep him busy at something he likes to do. Make him think he is the whole show. The old man, who has been a society man all his life, must be handled with gloves, for you want him to feel good, and he will not if you allow him to sit quietly on the back

seats. See that he has some committee work he likes and consult him frequently. Defer to him and make him feel that he is of use and you have made him yours and the societies' friend. The young man should not be hard to handle but he is. At first he is apt to think he must not do anything because he is young but get him started in early and he will soon find his niche in the work, and if he has anything in him will keep it up. Make it your especial object to get the young men in the society just as soon as they locate. If you do not there are many things that may deter him later. Sometimes he is unfortunate enough to incur the enmity of some of his confreres that do belong to the society, and then he fears to try it. Of course, such things should not occur, but they do, and if you have him in early he is easier to handle. Why doctors should fight is one of the things unaccounted for by scientists, but they always did and I am afraid always will. It is largely due to the fact that they do not know each other, and the very best way to have them know each other is to have them meet frequently. Just here let me emphasize what I know to be a fact, that a society that meets quarterly can not hope to hold its members. It is hard enough with monthly meetings to do this, but with a weekly meeting of classes it can be done.

Pardon me for referring to our society, of which we are very proud, but we have seen it go through all the stages, from a quarterly meeting, that would miss the spring meeting because it was muddy, to the bi-monthly meeting, which was an improvement, and then the monthly meeting, with the weekly quiz and study classes to do the postgraduate work. Our experience has been that the more meetings you have the better the attendance is and the more interest in it. We have found the postgraduate work to be the best thing yet invented for the county society in the country; it should be in the city and will be in the near future. We have seen our society under this kind of management go up in attendance from 10 or 12 to an average of 14, and its membership from 50 to 123. We have seen its treasury from being an empty box, with the dues at \$3.00 per annum and the working members being compelled to go down in their pockets to make the annual payment to the state society in order to keep it from being dropped from their list, changed to a plentiful allowance and the dues placed at \$4.00 per year.

A secretary should be paid for his services. It may not be very much, but it makes the society feel that they are entitled to his services; it also helps the secretary to feel that he is of use. Men the world over appreciate that for which they pay more than pure altruistic work. Keep them feeling that it is their society and keep as far as possible from allowing them to think you are trying to run it. This can be done by frequent consultation by letter. Of course the one consulted, as a rule, has not given it any thought and will defer to your opinion and you have shut his mouth up by the consultation.

Now, as to a published program for the society. We have watched that from the old postal card era, printed yearly and an abomination to intelligent men, to the present plan of mailing a monthly periodical that is of real use to the members. If you go about it right it can be placed on the second class mailing list and the expense of mailing is practically nothing. In our county, where we formerly paid a cent apiece for every notice, we now mail about 200 for the sum of two cents. Doctors need to be told frequently what they should know. Through the monthly publication of such a sheet you can keep everlastingly at it, and even then they will forget. Tell them monthly when and where the state and national societies will meet. Tell them monthly what the dues are, and by means of a system of blue crosses on their paper you can tell them if their dues are paid. We find it a better way to remind them of their unpaid dues than the sending of a dun. His wife will keep at him until he pays it, in order to get the telltale blue cross removed. Tell him frequently how to go about it to get his neighboring doctors into the society and the advantages to be derived from membership. Give him something to think about every month. It may be reminiscences that will appeal to the old man; give him something that will make him want to see it monthly. It is not hard work to make such a leaflet and does more to keep up the interest than a half dozen smokers and outings, although these should be at-

tended to also. The cities have appropriated this feature of the weekly and monthly bulletin, but there is no reason why any wide-awake country society should not do it also. That is one difference between the country and city society. We are willing to adopt anything they have that is good, but with the city, never. Many country secretaries are doing this all over the United States, and even some of them in Illinois. I have been honored to be instrumental in aiding some of your secretaries in launching this feature and will be very glad to answer any questions along this line.

The man who would be secretary should not allow the night to close after the meeting until he has his minutes written up in a neat book. To my mind, the typewritten form is best. A book can be procured for a dollar or two that will last for years. They should be written early, while fresh in your mind and also to carry out your rule to do a thing as soon as possible and not put it off until to-morrow. I knew of one secretary who allowed his minutes to remain unwritten, under the old way of conducting a society, for over ten years. Such procrastination is unpardonable. You should always answer every letter no matter how trivial you may think it, the day it is received. You thus set an example to the rest that they need. Fellow secretaries, don't you have men in your society that you never write to because you know they will not answer? I do. This is one of the earmarks of a doctor that will crop out in men that are otherwise courteous gentlemen.

The man who would be secretary, as a rule, has much to do with the program for the meetings. This subject, to my mind, has been solved by the introduction of the postgraduate course as recommended by the A.M.A. It insures a regular monthly program that can be looked up a year ahead and prepared for. We, in our county, have only been working at it for six months but feel assured that it has solved the much discussed question as to what to do at the monthly meeting. It requires steady work on the part of the men interested to get this work started, but I have as yet failed to interest any set of men that wanted to study. The man that is too lazy and will not study is an incurable that should and will be eliminated from the ranks of successful practitioners. He is a menace to the community. I know of nothing as yet invented that will do more for the doctor who really wants to know and wants to keep abreast of the times. I know of nothing, aside from this feature, that so stimulates a society to do better as a society and that increases its membership and attendance as does the postgraduate work. In order to do it you will soon see the necessity for monthly meetings, and, as I said before, the more frequent the meetings the better the attendance. Many of our societies adopted this course, immediately following the visit of Dr. J. N. McCormick, of Kentucky, in 1908, and all are following it with pleasure and profit. You, as secretary, can do more than any one else toward forwarding this work. You can stimulate the different classes to do better work; especially can you do this if you are publishing a monthly bulletin. Wherever two or more doctors can meet weekly they can have a class that will help. It gets them together, they know each other better, and it is a little business meeting also, wherein the dead beat subject, which is ever dear to the hearts of the doctors, can be discussed. Men will not scrap who meet frequently. They are more apt to find much to admire in the other man. Two hours will be spent that I am sure is a better investment than playing poker or telling off-color stories at the drug store or club. It interests the old and the young alike. Some of our best workers are men over sixty, who realize the need of a better knowledge of modern medicine. Those of us who studied medicine when a clinical thermometer was a curiosity can appreciate the advances made better than can the man who graduated a few years ago, but to him the blood testing apparatus is a curiosity. The work done by this course in February this year along the line of serum therapy was a godsend to many a man who practiced empirically before he had to study it. Those of you who are not doing this work are, to my mind, not living up to your opportunities. Try it.

Organization has been the cry for years in the profession; it has done wonders; it has been found that a long list of names did not make a good society.

We have that in most counties now; you must use these men, keep them interested, or they will not stay organized. Give them something tangible and they are interested. It is your province, Mr. Secretary, to do these things, for if you are not heart and soul in this and every other work of your society, get out and let some one take your place who will work and live up to his opportunities. A lazy secretary is an abomination and an incubus to a set of men that should not be permitted. How often do you see a society make a president of its secretary in order to get him out and let him down easy, so that the break may be made use of to make a change in the secretaryship. Whenever you feel that you can not live up to the requirements of the office, resign, but be sure you are right before you do. Your own selfish interests must not be consulted. You that are secretaries now have your opportunity that should not be allowed to be trailed. Be a mixer and be a mixer with doctors. Go to, and belong to, all the medical societies you can find time to, and thus study doctors from every standpoint. It is the only way you can know them. If you live to be as old as Methuselah you will come across a new brand of doctor even then. I believe Dr. McCormack has met and knows more doctors than any other man on earth. His broadminded advice has done more for the profession than all the written articles ever published. His addresses were to the profession as a whole, while I am attempting to influence only the one man in the society, the secretary, but I feel that you have more influence than any fifty ordinary doctors.

These meetings of the secretaries of the component societies are a good thing in so far as they stimulate you to do better work. Do not allow them to be stale and prosy. Have only your secretaries present, where you can discuss men as they are found.

Now, to sum up. The man who would be secretary must be the most alive and active man in the society. To quote from a recent writer in *THE JOURNAL*, "he need not be your brainy man, your most successful man, or your best speaker." These are qualities of lesser importance. He must like the work. He must be punctuality itself. He must be fair. He must be unselfish. What is best for the society as a whole must be his rule. If he has these requirements that society will not be a laggard in the march.

SUGGESTIONS FROM THE STATE SECRETARY.

E. W. WEIS, M.D.

OTTAWA, ILL.

The first thing I wish to say to you to-day, is to declare with emphasis what I have repeatedly suggested in my communications to the House of Delegates in the past several years, that the secretary of a medical society is the chief executive officer; that the good one should be indefinitely continued. This may be said of any organization, but it is particularly true of a medical organization, for upon him, upon his ability, upon his efforts and energy depend the life and well being of his society. Therefore, in the election of this officer one should be selected who is willing, and particularly, in my estimation, one who has a natural adaptability for the work.

When you take into consideration the fact that this officer must do this work for the love of the cause, as in the vast majority of instances there is no emolument in a money way attached to it, he must be of a certain make-up to do the work that is necessary. That one or more of such men exist in the ranks of the profession of every county in the state I do believe, and where found should be elected to this office. Presidents, vice-presidents and other officers may come and go; they have simply to look to the secretary for such work as is being done during their incumbency, but a good secretary should stay on forever. If one has not a natural liking for work of detail and for clerical work in general, that man never will make a good secretary. The best secretaries that I have come in contact with I find to be somewhat peculiar. By this I mean that they are out of

the ordinary line of men that one meets. The best is one who may be considered somewhat of a crank, if I might term it so, but I would rather call it a persistency of purpose. And, in addition to this, they are of an original turn of mind. In other words, more or less inventive geniuses.

The most common complaint that I receive from members of the component societies is that the society is dead, that they do not hear anything from the secretary, or that the secretary has not stirred in the matter, or that we have been depending upon the secretary to do this or that and that he has failed to do it. On the other hand, we do not receive any complaint from those counties that have good secretaries, and in this case it is, where there is no news, good news. Luckily for our state these facts are being naturally discovered, and where the right man has been found he has been retained in this office year after year, and, as a matter of fact, he would feel lost or slighted were he even to be advanced to a higher office. And it shows just what men of such calibre can do. I want to tell you that there are two component societies in our state that three years ago, in the one, they had a membership of about 30 and to-day a membership of over 80, and in the other society at the same time a membership of 15 and to-day a membership of 75 in good standing. I mention these two particularly for the fact that the present flourishing conditions of these two societies is due almost entirely to the efforts of the secretaries. In one of the counties it had been stated a number of years ago that it would be impossible for a county society to flourish, that it would not make any difference what effort the state put forth to encourage the members, it would be useless, because the physicians would not come together and organize a live, healthy and fruitful society. In the other there was constant dissension and bitterness until the proper man was put at the helm, and I want to say that nowhere in this country are there two more flourishing societies than those I have referred to. And, astonishing to relate, these secretaries are not young men just out of college, who have been given this position because they have nothing else to do, that they have no practice, so that they could attend to the duties of this office, but, on the contrary, were men of advanced years, the most active practitioners and busiest men in their community. Besides the exceptional instances that I have mentioned, there are a dozen of others who, had they the same opportunity, would do likewise.

I recall one secretary who, when he was elected to the office, declared that he was not fit for it, that he had not a liking for the work, that he did not believe that he was the man for the position; but in spite of his protest his friends knew that he had the ability and wished that he be elected. At the time of his election a little over a year ago, there were about 40 men in his county who were not members, and in his report of just a few days ago there were only 10, and most of these ineligible, who had not been gathered into the fold. Now, on the other hand, there are some occupying this position who have not any sort of adaptability for this work and should be retired. If the secretary finds that he can not create any interest or enthusiasm in his county, whenever he too readily despairs of the results, he should be honest even with himself, that some other man should occupy his place. You will pardon me for being a little insistent upon this point, as my experience has proven that where a county society is not flourishing, or, as some have written me, "our county society is dead, and no amount of work on my part can revive it," the blame for all this can be laid directly at the feet of its secretary. As an instance I want to narrate my experience with a certain secretary of one of our best counties, in which were a goodly number of some of the best physicians in the state. My correspondence with this secretary, one I know personally, who was a good friend and of whom I thought a great deal and a man of good executive ability but who could not, somehow or other, get down to business and keep his society going. I wrote him urging a departure from his ordinary methods and requested him to put a little more snap into the work. He tried it but it would not work. I finally wrote him and told him frankly that I did not believe that he was cut out for a secretary and advised that he resign the office. Astonishing to relate, he accepted the suggestion, another man was elected in his place, and to-day that county society is one of the best. Another

instance is where the secretary, because of his good nature, gentlemanly appearance, fine address and good physician, was continued in this position for a number of years. He almost wrecked the society, and since his retirement a great change for the better has taken place in his county society.

The secretary should give to his office the same amount of diligent labor that he would to any other successful enterprise, in fact, a little more so, for he is placed upon his honor to do for the entire medical profession of his county that which will not only elevate its standing but bring into harmony his professional brethren. He should know and remember that in his keeping and depending upon his actions are the professional welfare, professional ethics and professional good fellowship. He may not think so, in so many words, but as a matter of fact it is the truth. He becomes the arbiter, sometimes directly and sometimes indirectly, of many of the differences that do exist in the ranks. He is the one to whom all can appeal, and he certainly is the one that every member of his county society does depend upon for the solution of any professional problem that may arise. As a matter of fact, he is the center around which revolves all that stands for the best in our professional life or association.

Therefore, because there is no written law to guide him, his responsibilities are so much greater. You can put it down as a fact that in whatsoever county you find a united profession, the best of harmony existing, a high order of professional standing, good fellowship and a good live medical society, that the secretary is the best man procurable for the place in that county. Different localities will unquestionably require different treatment, the same method employed in one may not be conducive to the best results in another, but in a general way there are certain lines that, if followed, will give best results.

I believe that the first virtue that a secretary ought to possess is that of promptness. He should be prompt in all of his society work. Prompt at meetings, and in his preparation of the meetings. Prompt in his replies to all correspondence, and particularly so with the state secretary's office. This is such an easy matter to do and will save a great amount of useless regret. I have known secretaries to postpone the writing up of the minutes of an annual meeting of their county society until just a week or two before the next meeting. Every letter should be answered before going to bed.

The secretary should have a sufficient number of books or a card index system to record every item occurring in his office. He should not trust to memory at all. By this means many very valuable data relating to the medical society history of the county is preserved. The state society furnishes every secretary with a card index for the purpose of keeping a record of every physician in the county. All of the secretaries have this system, and while lately I have had comparatively few reports or changes, still it is a method which enables you to keep tab on every doctor in your county.

I believe it would be a good thing for each secretary to keep a biographical record of his members. Don't think because you happen to live in the country or small town that your history is not worth anything, for some time somebody will want to know all about your medical record.

The minutes or record of the meetings should be exhaustive and should be immediately written up, while all of the incidents relating thereto are fresh in your mind.

Preserve your correspondence. It can be compactly kept in a letter file so as to make it a matter of easy reference. I have in my office, filed and indexed, every letter written by me and to me during the past twelve years. With your records well preserved it becomes a matter of a few minutes to make up reports as are requested of you from time to time.

I know that many secretaries think that they are doing too much work in this matter of reports. I had one secretary write me that the enclosed report was the third one that he had made out within a few weeks. One to the A. M. A., one to his councilor and the other to me. It does not often happen that these must be made out so close together, but where a copy is kept in his office, as requested, it really is not much of a hardship. In this connection I might mention one little

item that I think has considerable bearing upon what I have said in regard to detail work and that is in the use of stationery and postage stamps. I know that I did the same thing when I was county secretary and secretary of the city society. I thought I was doing a grand thing when I cut down the stationery bill and used few postage stamps. This is a big mistake. I think the bill for these items should be large, and that it is the one place where economy should not be practiced. Use lots of stationery and stamps. There is always enough money in your treasury to pay for the same, and do not be afraid to incur a bill for printing. If you have to write any circular letters have them printed, and your postal cards the same. It really is a small item, relieves you of considerable labor and shows that you are alive to the exigencies of the occasion. If your county dues should not happen to be sufficient to cover these items insist upon their being raised.

This brings up the matter of collections, and here is where I think most secretaries fall down. The collection of the per capita tax and the annual county society dues sometimes becomes a very difficult matter. It is unfortunate that most members of our profession consider that the collection of this obligation is a personal matter with the secretary. While it is not true, still the notion does prevail in some instances that the secretary has a personal interest in it, and very frequently his reminder to delinquents is resented. This, of course, is not as it should be, for the secretary is simply acting as the agent of the society at large. A member should feel it a compliment to be reminded of his negligence or forgetfulness in responding to the call for dues. The secretary should understand that he is acting in a perfectly official capacity and should have patience with the shortcomings of some of his members. Secretaries should make it a rule to inform members, both at the meetings and otherwise, that all dues are due and payable at the beginning of each year and to make an effort to collect the same at that time. This is far more important than you may think, for the state society and not infrequently the county society bears considerable loss because of the lack of this precaution.

The custom has been for years for members to pay when they attended what is known as the annual meeting. This meeting generally takes place during the month of April or early in May, just prior to the state meeting. Everyone puts off paying until he sees the secretary personally at the meeting. Of course, they all intend to go, but the usual obstetrical or accident case occurs, they do not come, and they put off and put off their remittance until the year has gone by, and, like most people, hate like sin to pay for a dead horse. This leads, I think, more than any one other thing, to the dropping of members from the society.

If it were made possible that each doctor's dues should be paid on the first day of January for the ensuing year, I do not believe that there would be one physician in a thousand that would wish to be dropped from membership. Again, others move away; they certainly will not pay, and then again a few of us die.

To prove to you that it is not difficult to do what I have just been speaking of, I will refer to the secretary of my own county. Under the old order of things, the old established custom had been continued from year to year. But last year our secretary insisted upon the paying up of every member. This he accomplished by the last October meeting. On the first of January of this year he issued a circular notice that all dues were payable and he was ready to receive them, and he informs me that by the first of February he had received over 60 per cent. of them.

Many times the question has been asked me, when shall the secretary remit the per capita tax? Shall he do so when each individual member happens to pay or shall he allow them to accumulate for a certain length of time and then remit in bulk. My answer to this is, that as a matter of law the state society has nothing whatever to do with the individual collection of the per capita tax from the members. The state assesses the component society for each individual that has been reported in good standing by the secretary and therefore should be paid all at once but custom, unfortunately, in a great number of instances, has made it the rule for the secretary to remit the per capita tax only when it has been

paid into the local treasury. The time will come, and has already in many of our counties, when the treasury will contain sufficient funds for the treasurer to remit to the state society the sum entire of his membership, and this should be done early in the year, so that all loss of members, however occurring, will be noted early and the proper corrections made in the mailing list.

In the case of new members, when notified of their good standing, this of course means the payment of the local dues, and by local dues I mean the inclusion of the state per capita tax, their names will then be enrolled as members.

This ought to be the rule, but unfortunately many names have been reported, when the local dues were not paid, nor did they further qualify, and the result was that the state society suffered an actual loss until the correction was made. This led to the adoption of a resolution by the council instructing the secretary not to place on the mailing list any name until after the receipt of the per capita tax.

Again, it has frequently occurred when all conditions for membership have been complied with, the local secretary for months neglected to notify me. The new member not receiving *THE JOURNAL*, to which he knew he was entitled, would ask why the same had not been sent him. This, of course, involved considerable correspondence and much delay. In the last few years there have been many instances where physicians were elected to membership in the county society and had applied for membership in the A. M. A., and the first notice we had was an inquiry from the A. M. A. as to why his name had not been reported. A certificate of membership in the state society is absolutely requisite to membership in the A. M. A.

Now, in regard to the various changes in membership being immediately reported, I wish to show you the importance of the same. Each month these changes are reported, first to the editor, so that they will be corrected on the mailing list, then it is also reported every month to the A. M. A. This not only pertains to new members but to loss of members, removals, suspensions, deaths and change of officers.

Just a last word, requesting your earnest consideration of the emphatic request from me to send in a report of your election of officers, especially the president, vice-president, secretary-treasurer, delegates and the medicolegal committeeman. Please do this in the week in which the meeting has been held. This is extremely important and it saves others a great deal of correspondence and time. Every one of you know that a list of the presidents and secretaries is published in *THE JOURNAL*, and the only way we can keep it correct is with your prompt concurrence.

Finally, when in doubt as to any question or problem that may arise, if you will just kindly write, I shall be only too glad to aid you to the utmost of my power.

BOOKKEEPING OF THE COUNTY SECRETARY.

A. J. ROBERTS, M.D.

OTTAWA

Everyone who has filled the office of county secretary will agree with me when I make the statement that the duties of the secretary are manifold and many sided and that the life of the society depends largely upon his efforts. If the work is not attended to promptly and efficiently his work will soon become irksome, and before he knows it the office will have outgrown the man. Not the least of all the duties connected with the office of the secretary are those of keeping records and keeping them correctly. I have frequently heard the statement made (and I fear that it is not without a shadow of truth) that doctors are poor business men. If one allows poor business methods to obtain in the office of the secretary he will soon find the society is beginning to suffer and that the members have lost interest.

It is not in my province to give advice as to the work of the secretary, but I believe we can each improve our methods by giving suggestions and getting suggestions from others who, themselves, are in the same line of work. I, myself, am still new in the work, but since assuming the duties of secretary I have been endeavoring to improve the system, that I might expedite my work and quickly and correctly give the standing of any member of our society who might enquire.

The first change I made in the records of La Salle county was to change from the system of an individual ledger to that adopted by our worthy state secretary. I will here append a leaf taken from my record of our own membership.

As will readily be seen, according to this page, we have first the name, then the address, the amount each one pays, and the time, which is carried out on the opposite page for ten years. For example, it will be seen that one of these, at least, is an honorary member; several have not yet paid for this year; and on another page of my ledger will be found the names of several who are not in our state at the present time. These, of course, pay a different amount from those who are regularly on the list of active members.

I found this method would not only expedite my work but also furnish me a ready reference as to the standing of every member of our society. I soon found, however, that this would be inadequate of itself, for it gave no hint of my own standing with the society and also the state society. I therefore at once opened a journal account for debits and credits from which I also append a page of my record.

On my journal account you will notice that I have all of the expenses of the society in my credit account and in my debit account the dues from the members as paid from day to day. This allows me a check from one account to the other and I am therefore able to balance my account with my ledger account and thus complete the record for the year. If no such check were kept on the account I would be unable to check from one account to the other. By this system I am able at a glance to not only give the standing of any member of our society but also my own standing with the county and state societies.

Right here I feel that I should add a word of warning. I believe it absolutely necessary for a man to carry a separate bank account of society moneys. Even with this account how easy do mistakes creep in and how often one must check his accounts with the society account to make sure that no mistake has been made. For example, I found on two different occasions that I had signed my name and not my title when checking out moneys and was quite perturbed when I received a notice that my private account was \$100 overdrawn. One would find his accounts plunged into a chaotic state if no check was kept upon the society account.

Another thing that has occurred to me which is of great importance, if we are to keep a correct report, is to get down each item at once as it occurs, for it is very easy to lose track of money paid out and of dues received if left until tomorrow. Another thing that would greatly improve our system would be a universal receipt used throughout all the counties of the state to be made in triplicate. These, I believe, should be furnished by the state society, as they would cost but a trifle in large quantities and would furnish a receipt to the members, also a receipt to the county secretary from the state secretary, and leave a stub as a check on the system. If the state could not furnish them the county could secure them from the state secretary at small cost, and the same would act as a transfer from one county society to another.

I do not know the experience of other county societies, but I know that our own postage is large because of frequent reminders for members to pay their dues. I have no suggestion to make in this matter except this, that is, the secretary should send frequent notices if the members are delinquent in their dues. Personally I would prefer that some other method might be adopted if it were possible, but I know of no way to retain the members unless we continue to remind them frequently that their dues are due and unpaid. I presume I am more fortunately situated than most secretaries, for I frequently am obliged to tell the state secretary that I have sent out the following, or a similar notice: "The

state secretary has called for a report from the county secretary before the meeting of the state society. You will, therefore, confer a favor on the society if you will remit your dues at once." The county secretary can hold the membership and increase it if he will use tact in this department of his work. If, however, he gives the member to feel that we do not need him and do not care for him as a member, he becomes careless and will lapse his membership for this and no other reason. Strictly speaking, it is of no moment to the county secretary whether the members retain their membership or not, except for the fact that the secretary is interested in keeping up the membership and must be the policeman to keep the delinquent member in line.

Another thing connected with the bookkeeping of the county secretary should be the keeping of a complete list of the physicians in his own county, whether members of the society or not. This should be revised frequently and, if possible, always kept down to date. Then the desired information will always be at hand, no matter for what legitimate purpose, as, for example, revising the lists for the A. M. A. Directory. In a large county it is a task to furnish all information off-hand unless records are at hand to give the correct information.

The minutes of the meetings should be attended to promptly. If one puts it off until time for the next meeting many of the important points of business which have transpired at the meeting will have gotten away from him, and it is important that the secretary should know all that has taken place and be ready to give an account of the society transactions whenever they are called for. All communications, resolutions and other matter which have been passed at the meeting should be cleaned up as promptly as possible as soon as the meeting has adjourned. This, of course, will take a great deal of time, but the loyal secretary will give it his best time and best thought in order to keep his society in the front rank of the county societies of the state.

Strictly speaking, the getting up of a program would not be considered the bookkeeping of the county secretary. However, it is generally expected that the secretary shall not only secure the essayists but also arrange the get-up of the program. This undoubtedly should be done in such manner and form that the program will be attractive and something about it will make it worth preserving. It has been the custom in our society of late years to have some little quotation by which a member is reminded of his duty to the society, or some good sentiment relating to the work of the society that will cause him to lay it on his desk instead of throwing it in the waste basket. This leads to a matter that I would like to speak of at this time, that is, that those of the county secretaries or branch secretaries who might care to do so have a mutual mailing list whereby each may receive suggestions from the other and where each can be mutually helpful to the other. I have received many good points from the leaflets and programs that I have received from other secretaries, and they have been very helpful to me in arranging my own program.

In summing up I would say that the bookkeeping of the county secretary is a matter that must be attended to as strictly as the bookkeeping of one's own private business. That the work must be done promptly and correctly; that the work must be gotten out in such manner and form that the physicians of the county will desire to hold membership in the county society, and that the secretary must have the interests of the society at heart if he is to make a success of his work.

ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF THE ILLINOIS STATE MEDICAL SOCIETY.

GENERAL OFFICERS 1908-09

PRESIDENT - JONATHAN L. WIGGINS, EAST ST. LOUIS
FIRST VICE-PRESIDENT - CLIFFORD U. COLLINS, PEORIA
SECOND VICE-PRESIDENT - JAMES E. STUBBS, CHICAGO
SECRETARY - EDMUND W. WEIS, OTTAWA
TREASURER - EVERETT J. BROWN, DECATUR
(Ex-officio Clerk of the Council.)

EDITOR - GEORGE N. KREIDER, SPRINGFIELD
522 Capitol Avenue.

ASSISTANT EDITOR - GEORGE EDWIN BAXTER, CHICAGO
1916 Evanston Avenue.

THE COUNCIL

CARL E. BLACK, JACKSONVILLE.	J. WHITEFIELD SMITH, BLOOMINGTON.
H. C. MITCHELL, CARBONDALE.	J. Q. ROANE, CARLYLE.
M. L. HARRIS, CHICAGO.	J. W. PETTIT, OTTAWA.
J. F. PERCY, GALESBURG.	J. H. STEALY, FREEPORT.
W. K. NEWCOMB, CHAMPAIGN.	

JULY, 1909.

THE QUINCY MEETING.

The Quincy meeting will go down into history as one of the most important meetings of the State Society. The attendance was not as large as was expected, but the proceedings were interesting throughout and the papers and addresses up to the high standard which has always prevailed at the meetings of the Illinois State Medical Society.

The City of Quincy has improved a great deal in the last seven years, since the last visit of the State Society, and is now recognized as one of the flourishing communities of the State.

The entertainment given at the hotels and private homes was excellent, and no complaint was heard along this line. The only sad feature of the meeting was the absence of Dr. Joseph Robbins, the Nestor of the medical profession in the western part of the State and one of the best loved men in the State Society. Dr. Robbins has been confined to his room in the Blessing Hospital for several weeks, suffering with an incurable disease, which he is facing with courage characteristic of the man and with the consciousness of a well spent life in the community where he has resided so long. The sympathy of those in attendance was expressed by the number of visits made to him and the words of consolation spoken. Members who were not in attendance would do well to write to Dr. Robbins, expressing their sympathy with him in his affliction and appreciation of the work he has done in medical societies the past forty years or more.

President Pettit made an excellent presiding officer, and by reason of his good grasp of the details of all matters coming before the House of Delegates pushed the business along to a rapid conclusion without friction and to the satisfaction of all concerned. The remarkable record made by Dr. Pettit during his term of office in visiting nearly every society in the State was fully appreciated by the members in attendance at the meeting.

The contest for the delegates to the meeting of the A. M. A. was in evidence during the whole session and served to put every delegate on the lookout for evidence as to who should be elected, and the result was the victory of those nominees presented by the Council of the Chicago Medical Society in accordance with the constitution of that organization.

Almost the first thing the House of Delegates did on convening Tuesday was to arrange for the sending of a telegram to every member of the Lower House then in session in Springfield, protesting against the passage of any bills giving special privileges to osteopathic practitioners. The effect of this movement was seen in the defeat of Senate Bill No. 214 by the House on the following day. Of course, a great deal of work had been done prior to the meeting of the State Society, but there is no doubt of the effect of the telegrams sent from Quincy.

A change was made in the next year's session by which it is believed the business of the society will be largely transacted on one day and the literary programs will have consideration for two full days. Danville was chosen as the place of the next meeting, and we hope that, beginning with the Sixtieth Annual Meeting, there will be a much larger attendance and greater interest shown than has ever been known before in this State.

One of the innovations of the meeting was the secretaries' dinner and conference, which took place Wednesday noon. There was a large attendance and great interest shown and the papers presented were of a high grade. The meeting was fortunate in having the presence of Dr. J. H. Donaldson, of Canonsburg, Pa., who came to our meeting especially to present some features of his work as secretary, and was warmly welcomed by all.

Dr. J. L. Wiggins, of East St. Louis, the new president, is a man in the prime of life, comes from a section of the State that was never honored before, and no doubt will prove as great a success in piloting our society as any who have preceded him. He has our best wishes for a successful term of office.

NEW CHARITIES ADMINISTRATION LAW.

In the leading editorial in *THE JOURNAL* of May last, entitled "Senate Bill 448," we made the following statement: "Selfish political opposition is the one great peril this excellent measure faces."

The statement proved true. Senate Bill 448 was the measure reported out favorably as a committee bill by the Senate Committee on

Charitable, Penal and Correctional Institutions, of which the Honorable Logan Hay, of Springfield, was the chairman. This bill was endorsed by the State Board of Charities. When it came into the Senate for debate the previously spasmodic opposition to the bill swept into the open unified and with knives unsheathed. There is not space here to go into the details of what happened, except to state that personal and political interests secured the elimination of the prisons and the reformatory and the carefully prescribed qualifications of members of the Board of Administration from the provisions of the bill. The term of office was changed from that for good behavior to four years. The salaries were reduced from \$7,500 per annum to \$5,000. The bill, even further amended in other particulars, went to the House. It was publicly repudiated by the State Board of Charities, and properly so. It remained quiescent in the House Committee. However, in the last days of the session there was a rattling of dry bones. The House passed the bill which passed the previous House one year before. Conference committees were appointed and a remodeled measure, based on the Senate Bill, with concessions to the State Board of Charities on debated points, passed both houses. It was approved by Governor Deneen on June 15.

This measure was accepted by the State Board of Charities with the statement that, while it did not contain all of the features in the original Senate Committee bill, it did contain many invaluable features, and in effect was the best measure of its kind that ever had been drafted for any American commonwealth.

The new law provides for a system of management, with centralized responsibility, by a Board of Administration of five members paid \$6,000 per annum each, and serving six years each in rotation. It provides also for an entirely independent and separate system of inspection, criticism and recommendation by a Charities Commission and by visitorial boards, dependent upon the Charities Commission, for each of the 17 State charitable institutions. The inspection system, by a section of the Lunacy Act, extends to poorhouses and jails. The inspecting bodies serve without salary, but their expenses are paid.

While the measure presents a fascinating study in administrative science, based, as it is, on a combination of the best points in laws of other States, a discussion of its details would be too voluminous for proper presentation in a medical publication. Its points of interest to our profession are:

1. It provides that one of the members of the Board of Administration shall be qualified by experience to advise the Board in all matters relating to the care and treatment of the insane, the feeble-minded and the epileptic.

2. It creates and establishes the State Psychopathic Institute (previously existing by grace of an appropriation to Kankakee) and prescribes that this Institute shall have a director, a psychologist and other employés.

3. It eliminates the word "insane" from the nomenclature of hospitals for the insane. In the future the hospitals for the insane will be known as state hospitals.

4. It codifies the Act of 1907 for the removal of all insane persons from county poorhouses to state hospitals and for taking over by the State of the Cook County Hospital for the Insane at Dunning. These steps are to be taken as the finances of the State permit.

5. It provides for the removal of feeble-minded women and children from county poorhouses to the Lincoln State School and Colony, which is the new name of the Illinois Asylum for Feeble-minded Children. This part of the law removes the last "Asylum" from the institutional nomenclature of the State.

6. It provides for the boarding out of insane patients in family homes.

7. It provides for the supervision by hospital physicians of cured or improved insane after their discharge or parole from state hospitals.

8. It provides for the coordination of occupation of inmates in the various state charitable institutions.

9. It provides for the inspection and licensing by the Board of Administration of private hospitals for mental and nervous cases with a penalty of a fine from \$50.00 to \$1,000, or imprisonment not to exceed six months, or both, for persons who keep patients contrary to their will in a private institution not licensed by the Board.

This measure, like other great reforms, is a compromise. Its medical and fiscal provisions are superb. If the medical provisions mean anything, they assuredly mean the ultimate establishment of a large psychopathic hospital with a clinic in psychiatry, like those in Germany, which will properly educate physicians in mental and nervous disorders and will be one of the great boons given to suffering humanity by science and an enlightened state administration.

In its general provisions, as well as in its medical features, the new law presents no untried experiments. But it is true that a Governor less broad minded and enlightened than Governor Deneen could appoint, under this law, a political board, whose management might be disastrous to the wards of the State. That is the weak point in the law as we see it. However, we believe the present Executive will appoint a strong and able Board of Administration, thus assuring a continuance and crystallization of his policies regarding the charitable institutions as expressed in deeds during the last four and one-half years. The appointments are to be made this month.

The machinery of the bill is so well put together it would be difficult for the curative treatment of the insane, now so well established, to receive a serious setback. We believe that Illinois, now ranking among the first States in the Union in the methods of care and treatment of mental cases, will build well on the broad foundation already laid and that the physicians of this State will have reason to point with pride to new developments from time to time. Already other States are bidding against Illinois for the nurses educated in the training schools of its hospitals for the insane.

The danger in the new law lies rather in the possibility of the abuse of its fiscal provisions, than of its professional standards, at the hands

of a Board of Administration which might either be incompetent to grasp the magnitude of the service or dishonest in its administration.

The physicians of Illinois may well be proud of the enactment of Senate Bill No. 448. We have in it much more than half the loaf we desired. We should be grateful first to Governor Deneen for appointing a strong and able non-political State Board of Charities to advise him in the difficult and trying labor of remodeling the State charitable equipment and service; secondly, to avowed politicians who fought ceaselessly against other politicians for the elimination of loaves and fishes from the public charity service; and, finally, we should be grateful to Dr. Frank Billings and to Dr. John T. McAnally, who as the medical members of the State Board of Charities have helped to accomplish an institutional revolution at great personal sacrifice and without recompense as the world views recompense.

OSTEOPATHIC BILLS DEFEATED.

Considerable interest attaches to the defeat of the bills allowing special privileges to osteopathic practitioners by the Forty-Sixty General Assembly. The osteopaths began early and secured the assistance of well-known attorneys in Chicago and elsewhere and a number of members of the Legislature with the determination of having the bills passed which would give them all the rights and privileges of practitioners of medicine and surgery. They had made considerable headway when our legislative committee began to work through the local societies. Both bills passed the Senate, one of them, No. 214, having been defeated on first roll call in that body, but was afterward passed by a bare majority of 26 votes. Fortunately the bill on third reading came before the House while the State Medical Society was meeting in Quincy and the telegrams sent to the 153 members as the final expression of our organization, representing 5,500 members, with component branches in every county in the state, protesting against the passage of this bill had much to do with its defeat. The vote was 45 in favor and more than 70 against. However, the osteopaths were not yet through with the fight, and Senate Bill No. 351, with the following objectionable section, was passed in the Upper House and every effort was made to get it through the Lower House:

Provided, further, that graduates of a regularly chartered and reputably conducted osteopathic college of medicine and surgery, who have completed a course of not less than four years of nine months, no two courses to be taken in any one year, and have passed an examination in all regular branches of scientific knowledge regularly taught in medical colleges, including surgery, the theory and practice of osteopathy, surgical medicine and comparative therapeutics in which the physiological action of drugs, the use of antiseptics, antidotes and anesthetics are embraced shall receive a license as a physician and surgeon from the state board, which license shall entitle the holder thereof to all the rights and privileges of physicians and surgeons and subject him to all the duties imposed by law upon physicians and surgeons in this state, upon the payment of the fees required by this act.

Provided, further, that graduates of such regularly chartered and reputably conducted osteopathic colleges of medicine and surgery, who graduated before

this act comes in force, after completing a course of four years of nine months each, shall be granted a license without examination, on the payment of required fees provided in this act, presentation of the diploma and identification of the holder thereof.

During the closing hours of the session the bill was put on third reading in the Lower House. The disgraceful proceedings concerning this bill can be well understood from the following quotation from the *Illinois State Register* on the matter:

DISTURBANCE OVER 351.—Apparently taking advantage of the temporary absence of a number of Representatives from the hall the supporters of Senate Bill 351, which provides recognition by the State Board of Health to osteopaths and osteopathic colleges, called up the bill. Representative Adkins was acting as reading clerk at the time. Before the roll call was announced Representative Tippit, who opposed the measure, challenged the correctness of the count. Confusion then began and the opposing members rose to their feet and shouted contradictions at each other. A verification of the roll was ordered by Representative Chipfield, who was in the chair, and when the kinks had been straightened out the bill was declared lost, although on the original call *there had apparently been sufficient ayes voted to pass the bill*. The official roll, as verified, was 63 ayes and 41 nays, and the bill was lost, not having received a constitutional majority.

The attorney of the State Medical Society appears to have been responsible for calling the attention of Representative Tippit to the outrageous proceeding of voting absentees, and had he not been present the bill would certainly have passed in the confusion incident to the closing session.

Representative Chester M. Church, of Chicago, seems to be responsible for the pushing of these bills, as he was active in behalf of the osteopaths two years ago.

It seems probable that this will mark the close of the efforts of the osteopaths to secure special legislation in this State. The school is rapidly disintegrating and the better members of the sect are attending medical colleges and becoming practitioners in fact as well as in name. Of course, it will not be safe to rest on the assumption that the osteopaths will not ask for further legislation. On the other hand, the votes of the past session have proven how great the strength of the State Society is in a political way when all of the elements are brought into harmonious working order. It is quite certain that the State Society will have to arrange for active political work at each session of the General Assembly of Illinois and the sooner this is appreciated the better.

Correspondence.

OSTEOPATHIC BILL DEFEATED. THOSE WHO VOTED.

In compliance with a resolution passed at the meeting of the Public Relations Committee on June 1, I hereby submit the names of the Senators and Representatives from Illinois, exclusive of Cook County, in the

Forty-sixth General Assembly, together with their addresses, as well as the way they voted on Senate Bill 351, a bill which, if enacted, would confer upon the graduates of certain osteopathic schools all the rights and privileges of physicians and surgeons and would require the State Board of Health to license, without examination, all such osteopaths who graduated previous to July 1, 1909.

F. after the name of the legislator denotes voting for the bill. A. denotes voted against the bill, and N. V. denotes not voting:

EIGHTH DISTRICT.

The Counties of Boone, Lake and McHenry.

Albert J. Olson, N. V.	McHenry	Woodstock
A. K. Stearns, F.	Lake	Waukegan
Edward D. Shurtleff, N. V.	McHenry	Marengo
Thos. F. Burns, A.	Boone	Belvidere

TENTH DISTRICT.

The Counties of Ogle and Winnebago.

Henry Andrus, F.	Winnebago	Rockford
Johnson Lawrence, F.	Ogle	Polo
Earl D. Reynolds, N. V.	Winnebago	Rockford
James H. Corcoran, N. V.	Winnebago	Rockford

TWELFTH DISTRICT.

The Counties of Carroll, Jo Daviess and Stephenson.

John C. McKenzie, N. V.	Jo Daviess	Elizabeth
Stephen Rigney, N. V.	Stephenson	Red Oak
William W. Gillespie, N. V.	Carroll	Savanna
Martin J. Dillon, A.	Jo Daviess	Galena

FOURTEENTH DISTRICT.

The Counties of Kane and Kendall.

Thomas B. Stewart, N. V.	Kane	Aurora
Arwin E. Price, N. V.	Kane	Elgin
Frank W. Shepherd, F.	Kane	Elgin
Geo. W. Alschuler, A.	Kane	Aurora

SIXTEENTH DISTRICT.

The Counties of Livingston, Marshall, Putnam and Woodford.

Ira M. Lish, A.	Livingston	Saunemin
Josiah Kerrick, F.	Woodford	Minonk
Harrison T. Ireland, F.	Marshall	Washburn
Michael Fahy, F.	Marshall	Toluca

EIGHTEENTH DISTRICT.

The County of Peoria.

John Dailey, F.	Peoria	Peoria
Charles F. Black, F.	Peoria	Mapleton
Lucas Isaac Butts, F.	Peoria	Peoria
Thomas N. Gorman, F.	Peoria	Peoria

TWENTIETH DISTRICT.

The Counties of Grundy, Iroquois and Kankakee.

Edward C. Curtis, N. V.	Kankakee	Grant Park
Israel Dudgeon, F.	Grundy	Morris
Geo. H. Hamilton, F.	Iroquois	Watseka
J. W. Allison, A.	Kankakee	Essex

TWENTY-SECOND DISTRICT.

The Counties of Edgar and Vermillion.

Martin B. Bailey, F.	Vermillion	Danville
Wm. P. Holaday, F.	Vermillion	Danville
J. Russ Grace, F.	Edgar	Chrisman
Geo. W. Myers, N. V.	Edgar	Paris

TWENTY-FOURTH DISTRICT.

The Counties of Champaign, Moultrie and Piatt.

Henry M. Dunlap, F.	Champaign	Savoy
Chas. Adkins, F.	Piatt	Bement
Joseph Carter, F.	Champaign	Champaign
Homer E. Shaw, F.	Piatt	Bement

TWENTY-SIXTH DISTRICT.

The Counties of Ford and McLean.

Frank Hamilton Funk, N. V.	McLean	Bloomington
John A. Montelius, A.	Ford	Piper City
Wm. H. Wright, N. V.	McLean	McLean
Daniel D. Donahue, F.	McLean	Bloomington

TWENTY-EIGHTH DISTRICT.

The Counties of DeWitt, Logan and Macon.

James Atlas Henson, F.	Macon	Decatur
Edwin C. Perkins, F.	Logan	Lincoln
John R. Robinson, N. V.	DeWitt	Farmer City
Byron F. Staymates, N. V.	DeWitt	Clinton

THIRTIETH DISTRICT.

The Counties of Brown, Cass, Mason, Menard, Schuyler and Tazewell.

Walter I. Manny, A.	Brown	Mt. Sterling
Louis Zinger, N. V.	Tazewell	Pekin
A. M. Foster, F.	Schuyler	Rushville
Wm. M. Groves, A.	Menard	Petersburg

THIRTY-SECOND DISTRICT.

The Counties of Hancock, McDonough and Warren.

James Finley Gibson, F.	Hancock	Carthage
Henry Terrill, N. V.	McDonough	Colchester
Henry L. Jewell, A.	Warren	Monmouth
John Huston, A.	McDonough	Blandinsville

THIRTY-THIRD DISTRICT.

The Counties of Henderson, Mercer and Rock Island.

Frank A. Landee, N. V.	Rock Island	Moline
Thomas Campbell, N. V.	Rock Island	Rock Island
Frank E. Abbey, N. V.	Henderson	Biggsville
Henry L. Wheelan, A.	Rock Island	Rock Island

THIRTY-FOURTH DISTRICT.

The Counties of Clark, Coles and Douglas.

Stanton C. Pemberton, F.	Coles	Oakland
Carl S. Burgett, A.	Douglas	Newman
Wm. T. Hollenbeck, N. V.	Clark	Marshall
Polk B. Briscoe, N. V.	Clark	Westfield

THIRTY-FIFTH DISTRICT.

The Counties of DeKalb, Lee and Whiteside.

B. F. Downing, F.	Lee	Dixon
John H. Gray, A.	Whiteside	Morrison
Adam Collins Cliffe, A.	DeKalb	Sycamore
Wm. A. Kannally, F.	Whiteside	Sterling

THIRTY-SIXTH DISTRICT.

The Counties of Adams, Calhoun, Pike and Scott.

Campbell S. Hearn, N. V.	Adams	Quincy
Geo. H. Wilson, N. V.	Adams	Quincy
Charles E. Bolin, N. V.	Pike	Milton
Jacob Groves, A.	Adams	Camp Point

THIRTY-SEVENTH DISTRICT.

The Counties of Bureau, Henry and Stark.

B. F. Baker, N. V.	Henry	Kewanee
Francis J. Liggett, A.	Stark	Bradford
Clayton C. Pervier, F.	Bureau	Sheffield
William J. McGuire, F.	Henry	Kewanee

THIRTY-EIGHTH DISTRICT.

The Counties of Greene, Jersey, Macoupin and Montgomery.

Frank W. Burton, A.	Macoupin	Carlinville
William H. Behrens, A.	Macoupin	Carlinville
Louis P. Daley, N. V.	Macoupin	Carlinville
Henry A. Shephard, N. V.	Jersey	Jerseyville

THIRTY-NINTH DISTRICT.

County of LaSalle.

Corbus P. Gardner, F.	LaSalle	Mendota
Wm. M. Scanlan, A.	LaSalle	Peru
William R. Lewis, A.	LaSalle	Grand Ridge
Lee O'Neill Browne, N. V.	LaSalle	Ottawa

FORTIETH DISTRICT.

The Counties of Christian, Cumberland, Fayette and Shelby.

F. Jeff Tossey, F.	Cumberland	Toledo
Dell D. Brownback, N. V.	Shelby	Cowden
John C. Richardson, N. V.	Christian	Edinburg
Joseph S. Clark, F.	Fayette	Vandalia

FORTY-FIRST DISTRICT.

The Counties of DuPage and Will.

Richard J. Barr, N. V.	Will	Joliet
Guy L. Bush, F.	Du Page	Downers Grove
Frank L. Parker, A.	Will	Joliet
Thomas H. Riley, F.	Will	Joliet

In response to a postal from the secretary of the Chicago Medical Society asking Mr. Riley if the vote accredited to him by the Clerk of the House was correct, he writes as follows: "Don't recollect how I voted or what the bill relates to; and who in H— are you that wants to find out? (Signed) T. H. Riley." Such men should be retired on general principles.

FORTY-SECOND DISTRICT.

The Counties of Clay, Clinton, Effingham and Marion.

D. W. Holstlaw, A.	Marion	Luka
Charles L. McMackin, A.	Marion	Salem
H. J. C. Beckemeyer, F.	Clinton	Carlyle
Harvey D. McCollum, A.	Clay	Louisville

FORTY-THIRD DISTRICT.

The Counties of Fulton and Knox.

Charles E. Hurburgh, F.	Knox	Galesburg
Burnett M. Chipfield, N. V.	Fulton	Canton
Edward J. Kling, A.	Knox	Galesburg
J. H. DeWolf, A.	Fulton	Canton

FORTY-FOURTH DISTRICT.

The Counties of Jackson, Monroe, Perry, Randolph and Washington.

Robert J. McElvain, F.	Jackson	Murphysboro
William Stevenson, A.	Randolph	Tilden
James M. Etherton, A.	Jackson	Carbondale
Charles Sumner Luke, A.	Washington	Nashville

FORTY-FIFTH DISTRICT.

The Counties of Morgan and Sangamon.

Logan Hay, N. V.	Sangamon	Springfield
Thomas E. Lyon, N. V.	Sangamon	Springfield
Harry W. Wilson, N. V.	Sangamon	Springfield
James F. Morris, A.	Sangamon	Springfield

FORTY-SIXTH DISTRICT.

The Counties of Jasper, Jefferson, Richland and Wayne.

Albert E. Isley, F.	Jasper	Newton
George B. Welborn, A.	Jefferson	Woodlawn
Wm. C. Blair, A.	Jefferson	Mt. Vernon
Thomas Tippit, A.	Richland	Olney

FORTY-SEVENTH DISTRICT.

The Counties of Bond and Madison.

Geo. M. McCormick, F.	Madison	Alton
J. G. Bardill, N. V.	Madison	Highland
Norman G. Flagg, N. V.	Madison	Moro
Michael S. Link, F.	Madison	Mitchell

FORTY-EIGHTH DISTRICT.

The Counties of Crawford, Edwards, Gallatin, Hardin, Lawrence, Wabash and White.

James A. Womack, A.	Hardin	Karbers Ridge
John A. Logan, N. V.	Gallatin	Junction
William E. Finley, F.	Lawrence	Bridgeport
Charles L. Scott, F.	Edwards	Grayville

FORTY-NINTH DISTRICT.

The County of St. Clair.

Robert S. Hamilton, F.	St. Clair	Marissa
Fred Keck, A.	St. Clair	Belleville
John L. Flannigen, N. V.	St. Clair	E. St. Louis
Charles A. White, A.	St. Clair	O'Fallon

FIFTIETH DISTRICT.

The Counties of Alexander, Franklin, Pulaski, Union and Williamson.

W. O. Potter, F.	Williamson	Marion
R. D. Kirkpatrick, A.	Franklin	Benton
James W. Crawford, F.	Franklin	Benton
Sidney B. Espy, N. V.	Franklin	Benton

FIFTY-FIRST DISTRICT.

The Counties of Hamilton, Johnson, Massac, Pope and Saline.

Douglas W. Helm, N. V.	Massac	Metropolis
Lewis E. York, F.	Saline	Harrisburg
Charles Durfee, A.	Pope	Golconda
George W. English, N. V.	Johnson	Vienna

A special vote of thanks from the physicians of Illinois is due Messrs. Smejkal, Hruby, White, Blair and Tippit for the splendid work in the house in helping to defeat Senate Bills 351 and 214.

In view of the powerful political and other influences, as well as the alleged chicanery attempted on roll call of Senate Bill 351, the result of the vote indicates that the solons at Springfield at last realized that medical men are a civic force to be reckoned with in every community. There is no denying the fact that an organized medical profession comprising 11,000 members, as we have in Illinois, can accomplish any worthy purpose it sets out to achieve.

Upon reflection it should appear strange to any one that physicians do not interest themselves more in public affairs, for there are many grave and important duties confronting the physicians of the State, and it is the duty of every one of us to fit ourselves for the great constructive epoch at hand and to individually and collectively use the power we undeniably possess in bettering legislative and administrative service.

No one thing promises greater and more widespread gain to the profession, and to the people as well, than the fact that from one end of the country to the other leading physicians are actively entering the political arena and are interesting themselves in civic problems, and in not a single instance has it been necessary to sacrifice the professional status in the slightest. I sincerely hope for more active participation in public affairs in the future on the part of physicians, and that the medical profession, both as a body and individually, as enlightened citizens, will make their influence felt for good in city, state and nation.

Members of the state, county and branch medical societies, you should make a memorandum of the way your Senators and Representatives voted on osteopathic bills in the Forty-sixth General Assembly. If a considerable number of the members of the last legislature who voted for Senate Bills 214 and 351 fail of election when they go before the voters again, as is liable to be the case, the succeeding legislature may be expected to heed promptly the recommendations of the profession. Members of county and branch societies should at once get busy and perfect your organization so that in the future you can prevent at the next election the return to the Forty-seventh General Assembly of Representatives who in the past have voted for vicious legislation. Furthermore, you should see that prospective legislators are pledged before election to vote against all vicious medical legislation that may come before the Assembly.

CHAS. J. WHALEN, M.D.,

Chairman Public Relations Committee, Chicago Medical Society.

NOTICE.

Dr Hershall Baldwin, of Sidell, Ill., lost his purse in the Newcomb Hotel, Quincy, while attending the annual meeting of the Society. The purse contained a \$10 bill, a \$5 bill, and two \$2 bills, together with \$3.50 in silver. It contained no name or papers to indicate ownership. If this purse was found by any of the members of the Society, they will confer a favor by returning it to Dr. Baldwin.

COUNTY AND DISTRICT SOCIETIES

ADAMS COUNTY.

The Adams County Branch of the Illinois State Medical Society met in regular monthly session June 14 in the Elks' clubrooms, with vice-president Dr. John H. Pittman, in the chair. Others present were Drs. Grimes, Mercer, Christie, Jr., Kidd, Williams, W. W. and J. G., Gilliland, Montgomery, Rice, Koch, Blickhan, Ashton, Collins, Whitlock, Gabriel, Knox, Werner, Nichols, Shawgo, J. B. and Kirk, Lightle, Reticker and Wells. By motion a committee was appointed to procure flowers for two of our distinguished members who are ill, Drs. Joseph Robbins and Robt. J. Christie, Sr. The committee to whom was referred the formal acknowledgement and acceptance of the library of Dr. Joseph Robbins, which was presented to our society at the last meeting, made their report. It was a fine and generous tribute and appreciation of the donor's life and gift. Dr. W. E. Gilliland, when the society had returned from their luncheon at the Hotel Newcomb, was then introduced and presented a paper on "Fractures of the Femur and Their Treatment." He detailed a number of cases treated by his splint and demonstrated its use on a subject. This excellent and practical paper was discussed by several, and a vote of thanks was moved for Dr. Gilliland for his instruction. The doctor also made the society a present of his apparatus for the treatment of fractures of the femur and on motion it was accepted and placed in Blessing Hospital for the use of any member of the society. The secretary brought up the matter of the Adams County Branch issuing a monthly bulletin and the subject was disposed of by reference to the program committee with power. The matter and form of the regular August outing was referred to the Entertainment Committee. Adjournment.

CLARENCE A. WELLS, Secretary.

ALEXANDER COUNTY.

A regular meeting of the Alexander County Medical Society was held at the Commercial Club on May 28. There were present Drs. Bondurant, Cary, Clarke, Davis, Dickerson, Dunn, Dodds, Fields, Grinstead, Gordon, Hibbitts, McNemer, Rendleman and Walsh. The minutes from the previous meeting were read, which included the following resolution relative to the death of Dr. J. C. Sullivan, a charter member of this society:

Resolved, That we feel in the death of Dr. J. C. Sullivan the medical profession of this county and state has lost one of its able, worthy and progressive members; and it is further

Resolved, That the members of this society feel his loss deeply and recognize the fact that he was one of our most respected and honored leaders and one of the foremost and most eminent citizens of our community; and it is further

Resolved, That in memory of the deceased these resolutions be engrossed upon the minutes of this society and a copy of these resolutions be sent the family as a token of our esteem for them and as an expression of our regard for our late confrere.

The entire evening was wholly devoted to the discussion and adoption of a fee bill which was proposed by the committee appointed to draft and report same at this meeting. During the discussion, which at times was quite spirited, the query arose, If the minimum fee for an ordinary day visit as agreed upon by this society is \$2.00, would a member in good standing, by making a visit or series of

visits or calls, ranging from 50 cents to \$1.50, be entitled to the respect and privileges of this society, or would he be in line for censure and correction? This brought forth the question of lodge practice, which includes not only medical service to a member but the entire family. Contract mill practice, which was also in this line, was discussed. Though the discussions were quite heated, the meeting was thoroughly interesting and enjoyed by all, who finally unanimously adopted the fee bill.

BRAINERD DISTRICT MEDICAL SOCIETY.

The Brainerd District Medical Society held its thirty-third annual meeting in joint session with Logan, Mason, Menard, McLean, Sangamon, Dewitt, Tazewell, Ford and Iroquois county medical societies.

The meeting was called to order at 9 a. m. in the parlors of the Commercial Hotel, Lincoln, Ill., Thursday, April 29, with President J. M. Wilcox, of Clinton, in the chair. About forty members and visitors were present. New members admitted were: Drs. B. M. Barringer, of Emden; R. D. Berry, of Springfield; J. W. Welch, of Broadwell, and Maskel Lee, of Lincoln. At 10 o'clock the society visited the Illinois Asylum for Feeble Minded Children. Superintendent Hardt conducted the party through the different buildings in the school and a very interesting program was given which was not only entertaining but showed the excellent work accomplished by the institution. Light refreshments were served, after which the society returned to the Commercial Hotel to dinner, guests of the Logan County Medical Society.

The society was again called to order at 1:30 o'clock by President Wilcox, of Clinton. The following officers were elected for the ensuing year: President, D. W. Deal, Springfield; first vice-president, J. W. Bozarth, Mt. Pulaski; second vice-president, C. Rembe, Lincoln; third vice-president, C. W. Cargell, Mason City; secretary, H. S. Oyler, Lincoln; treasurer, C. C. Reed, Lincoln; board of censors, A. L. Britten (1910), Athens; Irving Newcomer (1911) Petersburg, and A. E. Campbell (1912), Clinton.

The following program was carried out and the papers were of unusual interest: President's annual address, J. M. Wilcox, Clinton. "The Benefit of Medical Organization in Upholding the Dignity and Honor of the Profession, and in Promoting the Welfare of the Public," J. W. Pettit, Ottawa, president Illinois State Medical Society. "The Importance of Medical Organization in the Diffusion of Medical Knowledge, and the Promotion of Ethical Relations Among Physicians," J. Whitefield Smith, Bloomington, councilor Fifth District Illinois State Medical Society. "The Behavior of the General Practitioner Toward the Specialist," J. B. Taylor, Bloomington. "Empyema, Its Diagnosis and Treatment," H. B. Brown, Lincoln.

Several very interesting cases were reported. A resolution was adopted expressing appreciation of the excellent and efficient manner in which the Illinois Asylum for Feeble Minded Children is conducted and thanks were tendered Dr. H. Y. Hart for courtesies shown the society. A resolution protesting against the passage of the Osteopathy Bill and the Optometry Bill was adopted.

"Old Brainerd" now has a membership of 106 members, making it one of the largest as well as one of the oldest medical societies in Central Illinois.

H. S. OYLER, Secretary.

CLARK COUNTY.

The regular monthly meeting of the Clark County Medical Society was held in the City Hall in Casey, Ill., May 5, 1909. Members present: Drs. Brice, Johnson, Bradley, L. J. Weir, McCullough, Mitchell, Duncan, Burnside and Hall. Visitors:

Dr. R. B. Boyd and Dr. Stotz. President E. M. Duncan was in the chair. A quiz on the anatomy of the female generative organs was given by Dr. McCullough. This quiz was very interesting and especially instructive. Dr. R. B. Boyd read an instructive paper on "Obstetrics," which was discussed thoroughly by all present. This meeting was well attended and, as a whole, was an interesting and instructive meeting and shows that our monthly meetings can be well attended with good, instructive papers, just as well as quarterly meetings.

CLINTON COUNTY.

An annual meeting of the Clinton County Medical Society was held in the City Club Rooms, Carlyle, Ill., Tuesday, May 11. The meeting was called to order by the president, Dr. J. J. Morony, and the following members were present: Drs. Morony, Meirirk, Carter, Gordon, Alsop, Roane, Klutbo, Fisber, Ferd, DuComb, J. W. Edwards and V. Vojt. The minutes of the previous meeting were approved and accepted as read. Dr. Vernon, of Carlyle, was presented for membership in this society upon motion by Dr. Gordon, seconded by Dr. Merrick. The rules were suspended and Dr. G. H. Vernon was elected a member unanimously. Dr. J. J. Morony made a few remarks pertaining to the slanderous attack recently made upon the Secretary of the American Medical Association by a few of his personal enemies: The Clinton County Medical Society hereby heartily commends Dr. George H. Simmons for the good and faithful services he has rendered the medical profession during his official capacity and further hopes that he will be retained as secretary of the A. M. A. as long as he is willing to grant his valuable services. It was also moved and seconded that our delegates bring this resolution before the house of delegates at the Quincy convention and that the secretary send a copy of this resolution direct to Dr. Simmons, just to show that the support of this society is in his favor.

Under the head of presentation of specimen and clinical cases, Dr. J. C. Klutbo showed a resection of fourteen inches of the colon taken out of a man 65 years of age as a result of gangrene caused by strangulated hernia. The case was of interest, owing to the fact that at the same time the resection was done not only was anastomoses in colon re-established but a Bassini operation for the radical cure of hernia was also done. The patient, notwithstanding his advanced age and that the hernia had been incarcerated for over twenty-four hours, made an uneventful recovery and left the hospital five weeks later a perfectly well man.

Dr. P. J. Meirirk cited a case where the scalp had been completely torn from the head of a girl 19 years of age by the hair being caught and twisted around a revolving shaft.

Drs. Gordon and Alsop presented three very interesting clinical cases. The society then adjourned for dinner.

In the afternoon the election of officers for the year 1909 resulted as follows: President, Dr. B. J. Meirirk, Germantown; vice-president, J. Q. Roane, Carlyle; secretary, John C. Klutbo, Breese; treasurer, F. M. Edwards, New Baden; Dr. John C. Klutbo was appointed delegate and Dr. H. T. Wilcox alternate to the state convention at Quincy. Drs. C. H. Lillie and J. L. Wiggins, of East St. Louis were guests.

Dr. Wiggins read a paper on "Borderline Cases of Appendicitis," which was discussed by almost all the members present. Dr. Lillie read a paper on "Tuberculosis in Infants and Children," which was most excellent, interesting and timely and much appreciated by all. A vote of thanks was then tendered Drs. Wiggins and Lillie.

Dr. Meirirk made a motion, seconded by Dr. Roane, to compensate the secretary for his services by paying him fifty cents a member per year. Motion carried. It was decided to hold the next meeting the second Tuesday in August, 1909, at Germantown.

JOHN C. KLUTBO, Sec.

COOK COUNTY.

CHICAGO MEDICAL SOCIETY.

A regular meeting was held April 7, 1909, with Ethan A. Gray in the chair. William T. Belfield presented the following resolution, which was unanimously adopted:

WHEREAS, The mentally defective classes, including habitual criminals, imbeciles and idiots, are increasing twice as rapidly as is the total population of Illinois; and these unfortunates transmit to offspring their own mental defects; and the economic and social welfare of the state would be furthered by the restriction of procreation by these defectives; and such sterilization of males is secured without danger or hardship through the minor operation called vasectomy; and such sterilization has been legalized for two years past in Indiana, and performed upon over 800 convicts in that state; therefore, be it

Resolved, That the Chicago Medical Society respectfully recommends to the General Assembly of Illinois the enactment of Senate Bill No. 249, which authorizes such sterilization and which has been recommended for passage by the Judiciary Committee of the Senate; and the secretary is directed to forward a copy of this recommendation to the clerk of each House of the General Assembly and to the Governor of Illinois.

Immediately after the regular meeting an adjourned special meeting of the society was called to receive the report of the Committee on Constitution and By-Laws. The constitution was then taken up article by article, and section by section, and adopted in the form in which it will subsequently be published. There being no further business to come before the special meeting, on motion the meeting adjourned.

Regular Meeting, April 14, 1909.

A regular meeting was held April 14, 1909, with Dr. E. C. Riebel in the chair. E. G. Beek read a paper on "The Effect of Corset-Lacing on the Intrathoracic Organs." Axel Werelius read a paper entitled "Experimental Pressure Atrophy of Thyroid, with a Brief Résumé of the Present Knowledge of the Gland." Discussed by A. H. Ferguson, A. D. Bevan, A. G. Carlson, J. J. Moorhead and C. G. Buford. H. M. Richter exhibited a positive pressure apparatus for operation on the chest. Adjourned.

DISCUSSION ON DR. WERELIUS' PAPER

Dr. Alex. Hugh Ferguson:—It is some time since I listened to a paper with so much pleasure. This work is a step in the right direction, and I wish to compliment Dr. Werelius on his work and on the result he obtains. With reference to the patient he operated on two weeks ago, I found that the right lobe was distinctly atrophied after the operation. The history of the case is such that the doctor hesitated to perform even a partial thyroidectomy. Surgeons hesitate to operate on such cases, because they often terminate fatally, soon after operation, especially when the thymus and the lymph glands are enlarged, and the patient is extremely nervous. These patients can be operated on easily by this simple method, although in the hands of a trained surgeon, and in suitable cases, a thyroidectomy is preferable. Of course, it remains to be seen whether relapses occur after this procedure. I would hesitate in a doubtful case to ligate both superior thyroid vessels, as has been recommended and practiced by Kocher. Experience has shown that we can not recommend the extracapsular tying of both superior and inferior thyroid vessels on account of the occurrence of tetany.

With regard to pressure atrophy, this is nothing more than the well known pressure atrophy seen in other parts of the body. The Chinese is a striking example. Truss pressure, splint pressure, etc., is more common. A pursestring suture can be placed around a portion of the thyroid gland in such a manner as to include most of the terminal vessels, without cutting off the circulation to the parathyroids. If it is interfered with, no matter what procedure is pursued, tetany and death is inevitable.

Recently I encountered two conditions that I never met before; but in the literature I find several such instances reported. In one case the only symptom

of the exophthalmic goiter was the tachycardia coming on with a perfect storm, and sometimes persisting for several days. The patient consulted the most prominent men in Chicago, Milwaukee and elsewhere, but it remained for her own physician to suggest the diagnosis. None but he thought of the thyroid gland; it did not seem to be much enlarged, its position being behind the trachea and sternum. After seeing the patient several times I agreed with her physician that it was a case of "crazy goiter." A thyroidectomy was done in this case, and the woman has been well since, although at first she had a few slight attacks.

Another patient had Charcot's paraplegia. The legs became weak and her reflexes appeared to be drawn. The patellar reflex could be slightly elicited by pressure above the patella, or beneath the knee. A consulting neurologist was of the opinion that the exophthalmic goiter merely exaggerated her nervous condition, although each condition was independent of the other. The girl had had chorea on three different occasions, was of a nervous temperament, and her father had neurasthenia twice. Now she shows none of the symptoms of Graves' disease.

Dr. Arthur Dean Bevan:—Dr. Werelius deserves great praise for his very creditable piece of research work. It is distinctly a contribution to the practical side of the surgical treatment of exophthalmic goiter. This is a very interesting subject, interesting to the entire profession. An experience in about fifty cases on which I have operated has impressed me with the truth of the theory of Moebius, that exophthalmic goiter is due to an increased or possibly altered secretion of the thyroid gland. I think that all the other theories based on involvement of the sympathetic system can safely be discarded. The work of Kocher and others has also confirmed the Moebius theory. I have seen in my own work such cases as this: A woman with marked symptoms of exophthalmic goiter, profoundly toxic, losing sixty pounds in weight in sixty days, so weak she could hardly move in bed. I hesitated for some time before operating, insisting that the internists must get her in better condition before I would think of operating. She continued to get worse, however, and I finally consented to operate and removed a large right lobe. The woman gained forty pounds in the next sixty days. The removal of the excess of thyroid tissue seemed to remove the cause of the disease. That is an extreme example of what we find almost constantly in the surgical treatment of exophthalmic goiter.

With regard to the work presented by Dr. Werelius, it is along the lines laid down by Kocher, who has contributed more of practical value to this subject than any other man. Kocher suggested ligating the vessels and diminishing the arterial supply and in this way the amount of thyroid secretion. In my service we have ligated the vessels in about fifteen cases; one case terminated fatally. The patient was evidently dying of the disease and in such a bad condition that we could not think of doing an extensive operation or of giving a general anesthetic. A few days before I ligated one superior thyroid he had a tooth pulled. He apparently was better for three or four days, the nurse left him for a few moments, and when she returned the man was dead. I hardly think that the operation had anything to do with the fatality. I merely mention this to show that some of these patients are in such bad shape that they die without any or as the result of the least interference. In the other twelve or fourteen cases in which I ligated the vessels I have noticed a distinct improvement, and in some cases a positive cure from ligation alone. I am rather inclined to believe that the ligation should be regarded as a preliminary step in every serious case, and it should be done under cocaine anesthesia.

There is one point in regard to the ligation of vessels which I would like to make clear. In our early work in this connection we ligated the superior thyroid artery as it comes off from the carotid, and then passed down to the upper pole of the thyroid, we exposed the external carotid just above the common carotid, then sought the artery opposite the great horn of the hyoid bone, and ligating it at that point. It was a difficult thing to do in some cases. The artery is by no means constant, and is sometimes given off from the facial and sometimes from the lingual. We had no means of being positive about the location of the artery. For this reason we have adopted a different scheme. A short transverse incision

like the Kocher is made across the neck, either under cocain or ether anesthesia. The muscles are separated, and the upper poles of the thyroid gland are pulled into view and ligated inwards. The effect has been very marked in some cases and not very encouraging in others. Kocher recommends ligation as a preliminary step in many bad cases. I would like to make this general statement from a practical standpoint without detracting in any way from the valuable work done by Dr. Werelius, and that is this: The surgical treatment of exophthalmic goiter, I believe, will be worked out along the lines of the removal of one-half of the gland, done in such an expert way, with so little disturbance to the patient and so rapidly, that it will amount to very little more than an operation of ligation.

I am quite sure that in the average case of exophthalmic goiter ether can be given, and that the enlarged lobe of the gland can be removed inside of fifteen to eighteen minutes, without any loss of blood by the patient, very little disturbance, no danger of secondary hemorrhage, and without much more risk than follows ligation. Wherever it is possible to give a general anesthetic, ether should be the anesthetic of choice. It is simply a question of developing the technic, and it has been demonstrated repeatedly that that is quite possible. Kocher advocates cocain anesthesia. Mayo has obtained as good or better results under ether. I have used both and prefer ether.

Some of us have done too much. I have had three deaths, and in each case we tried to do too much. Men like Kocher and Charles Mayo, with their present experience, would probably not have lost these three cases, and I doubt that I would lose them to-day, although, of course, there is a definite mortality in exophthalmic cases. These three fatalities occurred in persons who could hardly turn over in bed, and I removed not only the enlarged half of the gland, but resected a part of the other half. One of the patients died on the table, and the other two died in twenty-four hours and six days, with typical symptoms of hyperthyroidism.

Some men make this general rule, and I think it is a good one. If possible, do not operate on an exophthalmic case unless the patient can walk around the block. Then the operation can be done with great safety. I believe the safest procedure in the very severe cases is a preliminary ligation of the superior thyroids under cocain. The suggestion has been made to expose the gland and diminish the amount of secreting tissue by destroying it with the injection of carbolic acid or of boiling water. Some internists and some neurologists do not as yet accept the surgical treatment of exophthalmic goiter, but I believe that they must accept it until the time comes when they can give us a method which will yield better results.

Dr. A. J. Carlson:—There is no doubt that the methods employed by Dr. Werelius bring about a reduction in the size of the thyroid. It is a well known but unexplained fact that in these lake regions goiter is prevalent in dogs, about 95 per cent. of these animals having goiters. Many of these cases are cystic goiters, and the application of a pursestring suture in such cases would not cause a pressure atrophy, but simply a resorption of the cystic fluid. I have obtained as much as 500 c.c. of fluid from the cysts of some of these goitrous dogs. The goiters operated on by Dr. Werelius were true hyperplasia. Clinical evidence certainly supports the Moebius theory that exophthalmic goiter is caused by hyperactivity of the thyroid, but it is a curious fact, one which contradicts the statement made by Dr. Werelius, that exophthalmos is exceedingly rare in dogs. I have never seen a case of exophthalmic goiter in a dog. Marine showed that some of these goiters in dogs have the structure of the exophthalmic goiter in the human, and some observers have reported cases of true exophthalmos. There is no heart trouble, however, no protrusion of the eyes, and rarely myxedema. Dr. Reid Hunt, of Washington, discovered recently that by treating white mice with thyroid they developed immunity to a drug, acetone nitrite. He treated three white mice with the blood from cases of exophthalmic goiter (human), and in one case he got an increased immunity. In one case there was no effect whatever. We have tried to determine by this method whether an increased resistance can be

produced by blood or lymph from goiter dogs; the results have been negative so far.

There is a general view held that the colloid is the internal secretion of the gland, but there is no foundation for such a belief, and I doubt it exceedingly. Moreover, Hunt has recently shown that the active principle of the thyroid may be iodine-free. The thyroid of the newborn and of a child less than a year old does not contain demonstrable amounts of iodine, but feeding white mice with the thyroid of infants increases the immunity to this drug.

It has also been supposed that the internal secretion reaches the blood through the lymph. No matter what the type of the goiter in dogs, there is an increased lymph flow. In a goitrous dog more lymph flows from the gland in an hour than does in a normal dog in a week, but I have been unable to demonstrate that this lymph contains any of the internal secretion. Dr. Werelius is to be complimented for his persistence in this work, and there is no doubt as to the correctness of his results. I am not sure, however, that the same degree of atrophy would not follow simple ligation of the vessel. Carel and Guthrie got a diminution in the size of the goiter by anastomosing the thyroid arteries with the veins and thus diminishing the blood supply to the gland.

Dr. James J. Moorhead:—I have been associated with Dr. Werelius in this work. His claims are exactly as stated. In the operation on the young lady, owing to the critical condition of the patient, he displayed considerable boldness. Dr. Carlson mentioned Dr. Werelius' persistence. None but those taking active part in the work can realize the amount of this admirable quality possessed by the essayist.

Dr. C. G. Buford:—I have been very much interested in the paper of Dr. Werelius in the discussion of which Mr. Carlton has spoken of the comparative rarity of exophthalmic goiter in dogs in the lake region. As a matter of interest I will cite the fact that my first operation for goiter was performed upon a dog presenting marked exophthalmia. It is worth while to emphasize what Dr. Werelius has said about incisions in operating on goiter of dogs. According to my experience, the median incision renders the thyroid of these animals very much more accessible, the heavy muscles in the neck interfering with the field very materially when lateral incisions are made.

When I began to do surgery of the thyroid gland I endeavored to work as independently as was possible; however, I first adopted the U-shaped cutaneous incision, passing downward parallel to the sternomastoid, crossing above the sternum and upward parallel to the opposite sternomastoid muscle. This gave an excellent exposition of the field, but I found that it scarred the patients more than I thought was necessary. I believe this is an ideal incision for certain goiters, especially large ones. Later I adopted an incision consisting of a half U which passed downward parallel to one sternomastoid muscle and across the upper end of the sternum only. Thus I was in a position to more or less complete the U incision as became necessary. However, I have found this half U incision adequate up to the present time. In the last few operations which I have performed for thyroidectomy I have seen fit to still further shorten my incision and have not extended the inferior curve as far as formerly. In fact, in a recent case after the wound had healed, the cicatrix does not appear more than two and one-half to three inches long, yet through it I removed a moderate sized goiter. I think that the necessity for long incisions for this work is over estimated because the cutaneous covering and underlying structures about the thyroid are very movable and it is easy to retract the angles of the incision upward or downward and the edges from side to side, so as to expose any part of the field one wants to work in. In fact, very lately I made my incision with the view of removing the largest half of the thyroid, and finding the most pathology on the opposite side, removed that side through the original incision.

In reference to the question of anesthesia, I wish to say that I have been surprised at the attitude taken by some surgeons with regard to local anesthesia. About twelve years ago I had my first conversation with men who had performed laparotomies under local anesthesia, and while I admitted their integrity

I wondered at their boldness. I later heard of Kocher's success with local anesthesia in thyroid work, and at a late date decided to prove to myself its advantages and possibilities. From about Oct. 1, 1908, to Jan. 15, 1909, I performed five thyroidectomies under local anesthesia, giving hypodermis of morphin sulphate, gr. $\frac{1}{4}$, an hour before and sometimes, gr. $\frac{1}{8}$, just before starting to operate. Not one of these patients caused any disturbance during the operation. All of them have told me that the introduction of hypodermic needle and the closure of the wound were the most uncomfortable procedures of the operation and that retraction in exposing the field caused an uncomfortable pull. All of the patients moaned moderately while the gland was being separated on its posterior surface.

When general anesthesia has been given my patients have not felt well for ten days or more, for reasons not attributable to anything aside from the anesthetic; but when local anesthesia has been used a sore throat and difficult deglutition have been the principal complaints. These promptly pass away. Every one of the five patients having local anesthesia have sat on the side of the bed or walked around the bed the day following the operation, and in nearly all cases have been dressed and up in a chair by the second day. From this on, they have been up and dressed for a part of every day, though not for long periods at a time. They have usually gone home about the seventh or eighth day.

I close the wounds lately with horse hair and remove the stitches about the fourth to fifth day, thus diminishing to a minimum the stitch scars. After removal of the sutures, where necessary, I reinforce the line of union by an adhesive strip.

In reference to the ligation of the thyroid artery to induce an atrophy of the gland, will say that this is beautifully illustrated in the dogs shown here to-night by Dr. Werelius. Early in the history of thyroid surgery this procedure was tried and given up as being uncertain. It is to be hoped that experimentation added to what we now know of the pathology of goiters will enable us to choose cases in which this operation is applicable. I wish personally to thank Dr. Werelius for the instruction I have received here to-night.

Regular Meeting, April 21, 1909.

A regular meeting was held April 21, 1909, with Dr. H. E. Irish in the chair. Drs. W. J. Butler and W. T. Mefford read a paper entitled "Iso-Hemolysins and Iso-Agglutinins of Blood Sera with Special Reference to Cancer." Discussion by A. J. Ochsner. Robert H. Porter contributed a paper on "The Medical Management of Degenerate Children." Frederick Baumann read a paper on "Science and Medicine, with Special Reference to the Treatment of Gonorrhea and Syphilis." Discussed by W. S. Harpole and B. C. Corbus. Adjourned.

DISCUSSION ON THE PAPERS OF DRs. BUTLER AND MEFFORD.

Dr. A. J. Ochsner:—I have followed this subject from a theoretic standpoint very carefully, because I have felt that it is the work along this line that will finally teach us the nature of malignant growths. This is a tremendously interesting subject, and sooner or later something valuable will come out of it.

DISCUSSION ON THE PAPER OF DR. BAUMANN.

Dr. W. S. Harpole:—I was especially interested in the paper because it applied principles of pathology to the treatment of disease. It is known that every irritant when reduced in intensity becomes a stimulant, and it would seem that it made little difference in the treatment of many local conditions what particular irritant was selected. One might get good effects from heat or from cold, mechanical effects, electricity, chemical activity, and so forth, if applied in just the dose required for the production of such an effect. The simplicity of the Doctor's ideas with regard to drugs is especially attractive. If a specialist in this line should become familiar with the action of a silver salt, say nitrate of silver, so that he could play with it from its most intense effect, that of a caustic, to its mildly stimulating effect, he would be the master of a therapeutic agent which would prove extremely valuable. Nitrate of silver used locally in this man-

ner can be made to produce almost any effect that can be secured from a silver salt. It is a caustic, a local anesthetic, and a true astringent, producing not only contraction of the vessel wall but the locking-up of the spaces between the vessel wall cells. It also is a high grade antiseptic, thus possessing all of the necessary properties for the local treatment of infection, and it has seemed to me that if one used one drug, as silver nitrate, intelligently, it would become a drug of great possibilities and yield far better effects than if various silver salts were used indiscriminately and interchangeably. The clinician would do better by adhering to some one remedy and become expert in the management of it than to use many remedies without knowing how to use them.

Dr. B. C. Corbus:—Theoretically, Dr. Baumann's paper was very interesting, but practically it is not of much value. We all know that the modern treatment of syphilis will be a biological method, that is controlling the treatment by a Wassermann test. It is a question in what way mercury kills the specific virus of syphilis. We do know, however, that it is a specific. In addition to the mercury, however, it is always necessary to increase the resistance of the patient. About a year ago I saw a man who repaired wind instruments for a musical house, and the question was, Did he have syphilis? He had not taken any mercury whatever, but went over to Michigan and got all the fresh air and sunshine that he could. He had ulcerative lesions on the eyelids and pustular lesions on the face, which had healed completely by increasing his resistance with fresh air and sunshine, nothing else. I have had some experience with Kollmann's dilators. As is said of operations for appendicitis so it is in the treatment of gonorrhea, the main point is to get into the urethra, do what little you have to do, and get out. The man who treats the urethra as if it were a roadway will find that the urethritis will not get well as quickly as when he goes in and goes out, doing what he has to do with as little traumatism as possible.

SOUTHERN DISTRICT MEDICAL SOCIETY OF CHICAGO.

A regular meeting was held at the Michael Reese Hospital, March 29, 1909, with the president, Dr. Edwin B. Tuteur, in the chair. The subject for the evening was a symposium on "The Value of the X-Ray for Diagnostic Purposes," with lantern slides and shadow box illustrations and demonstrations upon patients. Dr. P. S. O'Donnell, skiagrapher Michael Reese Hospital, demonstrated an entirely new method of taking x-ray pictures, and illustrated the apparatus at work on patients.

Previous to taking up the scientific program, Dr. Henry F. Lewis offered the following preamble and resolutions, which were unanimously adopted:

WHEREAS, House Bill 173, now in the hands of the Judiciary Committee and its subcommittee seeks the enactment of an Illinois law providing for the creation of a Board of Osteopathic Examiners, that is, a special board such as no other class of practitioners has or desires, and would make the osteopaths a special class with special privileges; and

WHEREAS, Such a board is unnecessary, because the present State Board of Health, acting under present law, issues licenses to osteopathic practitioners; and

WHEREAS, Section 4 empowers the board to issue at its discretion a license to practice to any one who has practiced osteopathy for five years, without requiring any evidence of his previous education or professional fitness; and

WHEREAS, Section 6 requires osteopathic physicians to comply with municipal and state regulations concerning contagious diseases, but requires of them no evidences of knowledge or ability to do so; therefore be it

Resolved, By the South Side Branch of the Chicago Medical Society, that this bill should be defeated, and we hereby request our representatives in the Forty-sixth General Assembly to vote against this bill and use their influence against its passage.

We further recommend that the *Bulletin* of the Chicago Medical Society publish the names of all legislators who vote for or against the passage of this bill or for similar obnoxious legislation.

Resolved, Further, that a copy of these resolutions, signed by our president and secretary, shall be sent to each of our representatives.

Dr. Wm. T. Belfield presented the following preambles and resolution, which were unanimously adopted:

WHEREAS, The mentally defective classes, including habitual criminals, incurably insane, imbeciles and epileptics, are increasing more than twice as rapidly as is the remaining population of Illinois; and

WHEREAS, The economic, social and moral welfare of the community demands the prevention of procreation by these defectives; and,

WHEREAS, Such sterilization of males is secured without pain, danger or privation through the minor operation called vasectomy; and,

WHEREAS, Such sterilization has been legalized for two years past in Indiana, and performed upon over 800 confirmed criminals and other defectives in that state; therefore, be it

Resolved, That the Southern District Medical Society of Chicago respectfully recommends to the General Assembly of Illinois the enactment of a law requiring the sterilization of habitual criminals, imbeciles, incurably insane and epileptic persons in the state institutions of Illinois; and that a copy of this resolution be sent to the clerk of each house of the General Assembly and to the governor of Illinois.

REMARKS ON THE X-RAYS, WITH DEMONSTRATION OF NEW METHOD OF TAKING X-RAY PICTURES.

P. S. O'DONNELL, M.D., SKIAGRAPHER, MICHAEL REESE HOSPITAL, CHICAGO.

Every many to his trade, is an old maxim that applies to most things and x-ray work in particular. So many people, after seeing the performance of taking an x-ray skiagraph, make the remark, "How easy; is that all there is to it?" And, as I have on more than one occasion heard, the remarks would give one the idea that they are not having their money's worth.

May I ask the leading physicians and surgeons in all parts of the states, physicians and surgeons in European and continental countries, upon how many really expert skiagraphers they can count for emergency? "For emergency" I mean a radiograph that is absolute in detail for diagnostic purposes, and the answer will be from all parts, expert radiographers are very scarce, so much so that it will be of interest to reason why, in a few words, the lack of success by the practitioner who has installed an expensive outfit in his office, the disappointments and final disgust, and also their lack of success, condemning others, or falling back upon their apparatus as defective, and so on, when the failure is due entirely to their own lack of skill and technique, for the fundamental reason that the busy practitioner has not the time to study the subject. The expert radiographer is now as much needed as the skilled physician and surgeon and is indispensable to him. So back to my opening words, every man to his trade.

For producing high class detail radiography three essentials are necessary:

1. A thorough study of the minutest details of the apparatus that is used.
2. A special study of the development of x-ray plates, ordinary knowledge of photography, either amateur or professional, will be of little use, the radiographer who has sent his photos to an outside professional has received very little results, as it is out of the usual routine of development.
3. The interpretation of the skiagraph, which is the most difficult and also the most essential, for in the first place very few doctors can have it impressed upon them that a skiagraph is a shadow picture and not a photograph, and as these three items have to be obtained by experience and constant practice, information can only be obtained from text-books.

Shortly after the time when Professor Röntgen made known to the world his discovery of a light or molecular substance which he terms x-ray, the medical world immediately dreamed of a revolution in diagnostic methods beyond the bounds of credence. How far have these dreams been realized? The answer is practically negative, or nothing in comparison to the literature on the subject first published. The chief reason is not far to seek. Like most important inventions and discoveries connected with medicine, it drifts entirely into the wrong hands, and, secondly, the deplorable ignorance of the majority of medical men

connected with anything mechanical has condemned it more than the accidents that have happened in the hands of the unskillful.

The janitor, orderly, handy man, engineer, electrical or otherwise, have often been detailed to do this important work, with the result, *one big failure*; the failure because they entirely lack even the fundamental knowledge of the phenomena of a high potential current passing through vacuum. Again, the practitioner who has installed an expensive plant in his office is often led away by the manufacturer. I believe most of them are honest, and do their best for the



Fig. 1.—Skiagraphs 1 and 2 were taken of a child aged 4 years who swallowed a scarf pin, with head of Abraham Lincoln. The pictures were taken every four hours, and the pin was passed without injury in 36 hours.

embryo radiologist; but the tradesman can not and has not the experience of taking skiagraphs that are of any value for diagnostic purposes. Good bone work is shown to the customer as examples of what their particular machine will do. But, as the leading medical men know, bone work is the least essential of the real value of the *x-ray*. In this short paper there is neither time nor space to enumerate the many subjects that can be successfully diagnosed by radiography. My object is to show a method of overcoming effectually the greatest difficulty of even expert radiographers—density.

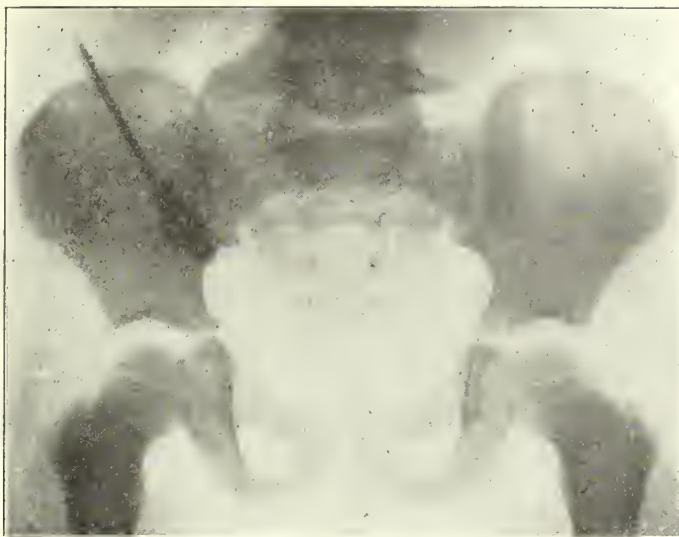


Figure 2.



Fig. 3.—Normal head taken with two tubes, as described in article.

It is not, by any means, going to lessen the difficulty of taking the skiagram as far as technique is concerned, for technique can only be learned by constant and minutest observation of the laws governing high potential currents, but I shall now demonstrate by numerous skiagraphs from patients weighing 180 to 260 pounds, kidney stones, gall stones, carcinoma and sarcoma, bone cysts, etc., and that they can be penetrated quite easily, giving skiagraphs of remarkable detail, and which I believe is a great step in advance in *x*-ray work. Unfortunately, these last few years the world has looked to the Germans for excellence of work, improvements in apparatus, literature and *x*-ray work in general, America and other countries being far behind. Why this is can be explained in a few words. The Germans have made thorough research and investigations and have professors to devote their entire time to the study of this important branch in science. In this new method the illustrations will show the performance necessary. Two tubes or even three are used in my apparatus at the same time. One tube being placed above the subject, in the usual manner, and the other tubes, which we will call auxiliaries, are placed in a different angle. There is an attachment which we will call, for a better name, "a cut-off" or secondary diaphragm, placed half way or less on one or both sides of the trunk or head, either posteriorly or antiposteriorly, and the tube or tubes so placed that the anode is exactly centered in the middle of the diaphragm, so that when the side tube or tubes are excited they will penetrate the subject laterally. Thus the auxiliary tube or tubes strikes the subjects midway between the trunk or head, by which means that portion is penetrated and offers less resistance to the tube placed above in the usual manner, the latter penetrating the part nearest the sensitized plate. It is better to use a compression diaphragm or other apparatus and especially a tube box that will condense the rays, thus cutting off the so-called *x*-rays.

In this method a good many disappointments will accrue in the preliminary trials, as it will be only by experiments and practice that high-class results can be obtained. It will be necessary to use two exciting apparatus. If coils are used it will be better to use them at equal spark-gap and connected in series with one interrupter. I am using two eighteen inch coils at the present moment. Again, it will depend upon the density of the subject as to whether the top or the auxiliary tube shall be of the same or different vacuum.

THE DIAGNOSTIC VALUE OF FLUOROSCOPIC EXAMINATIONS, WITH DEMONSTRATIONS.

Dr. Ernest Lackner:—I have been using the fluoroscope for diagnostic purposes for the last seven or eight years, and while one can make a diagnosis without its use, it is handy for verifying the diagnosis that has been made. I am speaking now particularly of the thoracic cavity, the heart and lungs. Pathological conditions of these organs can be much more easily made out with the fluoroscope than without it, and those portions that are not mapped out by percussion. Of course, the fluoroscope is of no particular benefit in that portion of the organism where auscultation is necessary to ascertain the conditions that exist. But there are certain conditions in which the fluoroscope is valuable as an aid to diagnosis. Take the case of pericarditis, where there is an extensive effusion in the pericardial sac. By the fluoroscope we can see the distended sac very easily. In 1901 we had a case of sudden effusion in the pericardial sac. Dr. McArthur resorted to aspiration in this case. Previous to the aspiration we made a fluoroscopic examination and found the pericardial sac distended like a football; it was compressed anteriorly and posteriorly. The diagnosis was made with the fluoroscope. When he aspirated he found that the fluid represented very much pure blood, and it was a question whether or not he had entered the heart, but he demonstrated that he did not enter the heart. After the aspiration we made another fluoroscopic examination and found the pericardial sac had collapsed, the case being one of hemo-pericardium.

We had another case of pericarditis with distended sac; the sac extended almost from one anterior axillary portion to the other. This sac was very much distended. Dr. Greensfelder aspirated in this case in the fifth intercostal space to

the left, and most likely entered the heart. I told him from the picture I had seen through the fluoroscope that he had better enter an inch and a half to the right of the sternum, the fourth interspace. He entered the sac and removed six or eight ounces of fluid. Fluoroscopic examination after that showed us the pericardial sac had again collapsed; that it had been emptied.

As regards the lungs, we had a case two weeks ago where a child had pneumonia and pleurisy. In the pneumonia resolution took place, but for a long time, thirty-eight days, the child had a constant temperature ranging from 103 to 104. Percussion showed dullness over the whole region of the lung. Fluoroscopic examination showed that this exudation, or membrane, or fluid was hard to determine from this examination, but it was distributed in peculiar patches over the lung. Here and there we would find, wherever the lung is not covered by thickened membrane, it leaves a clear surface. You can look right through it. Wherever it is thickened, or where there is a membrane covering the pleural surface, light does not penetrate this part so easily. It leaves a shadow. This showed the lung was covered by a membrane. By aspiration we could not get fluid. The child had extensive fever and operation showed what was the matter. The membrane covering the whole lung was not resolving; it was septic, full of pneumococci, etc., and finally would have killed the child.

In our examinations of the heart we can see the heart with the fluoroscope. We can see it as plainly as we can see it postmortem and see its pulsations.

I have here a case of a child that I will present to-night for a short time, as the child can not be exposed very long. This child had rheumatism and endocarditis. It had quite severe valvular trouble and pulsation of the aorta. In consequence of the enlargement of the heart from pancreatitis, etc., we were not quite sure as to what was going on in the aorta; but the fluoroscope shows there is an aneurism of the aorta. The question arises, did this aneurism develop in consequence of the rheumatism? If so, it would be a rare complication. A Wassermann examination of the blood by Dr. Butler showed the child had syphilis. The child responded readily to the Wassermann test. This child I will show you, but am very sorry you can not all see the case.

The fluoroscope is of great value in examining the heart. The size of the heart is easily determined by means of the fluoroscope.

I have a number of children which you can examine with the fluoroscope as well as you can, considering the time allotted us for making these examinations. One of the children you are about to examine has adhesive pericarditis, with great enlargement of the liver. Another child has an aneurism of the aorta.

STONE IN THE BLADDER; GALL STONES; FRACTURE OF THE PATELLA.

Dr. E. Wyllys Andrews:—I will show you, first, a skiagram of a stone in the bladder. Vesical calculi do not require skiagraphy for their diagnosis; but some calculi are so difficult of detection by the routine means, such as sounds and cystoscopy, that in this minority it becomes almost as valuable a resource as in the case of renal or ureteral calculi. It has happened in the last three weeks that we have had two of these somewhat interesting cases.

First Plate: We have a calculus clearly located in the bladder, with entire absence of any suspicion of calculus in the kidney or ureter. The stone looks in the shadow as if it were round, but it is oval, $1\frac{1}{2}$ by $2\frac{1}{2}$ inches. I will pass the stone around minus one or two chips which have been broken off from it. This stone can be seen on the skiagram, not exactly the exact size, but 10 per cent. larger in diameter than the stone itself when removed.

Within a week of this I had another case of calculus, which I was quite able to detect with a searcher and measure with a small lithotrite, but which I had sent to the x-ray room with the result you see. As in the other case, the patient was a young adult. I removed these calculi not by lithotripsy or litholapaxy, as is best done with small stones, but by perineal section, as the stones were quite large. This stone was removed by means of lateral lithotomy. I made no error in doing so. With a very large stone we should take it out not by a perineal but by a suprapubic incision. It was too large in the first grasp to pass between

the tuberosities of the ischia, but on rotating it a little I was enabled to deliver it without breaking.

Skiagrams of gall stones, one of which I have here, are somewhat rare. It has seldom occurred to me save in this instance to be able to photograph one. I think the overhanging borders of the liver cause most efforts to be failures. But in this case the gall bladder, with its calculi, is clearly shown. I removed this gall bladder intact and unopened. It was packed full of rather small buck-shot-size stones. The mass, including the stones, was pear-shaped, probably measuring three centimeters by ten centimeters.

I will next show you a skiagram of a recent fracture of the patella. In the first picture the tilting of the fragments interested me as showing the illogical effort we sometimes make to bring together fragments that are tilted down or up or with torn surface towards the skin. There is also the fact that fringes of fascia between the ends of the bone uniformly prevent bony union.

This case was operated on, not by wiring (which we have given up for a long time), but by carefully suturing the ligaments, drawing together the capsule with its torn anterior surface, which involves two large v-shaped tears, treating the



Fig. 1.—Fracture of patella taken 8 days after operation.

tears in the capsule as the essential thing and the tear in the bone as non-essential or incidental. The patella is like a sesamoid bone in a tendon. The fragmentation of the sesamoid bone does not have much to do with repair. This next is a skiagram which was made after the operation, showing that by suturing the soft parts we were able to get pretty good apposition of bone, in fact much better than we get by the bloodless method. I may say, the skiagram does not show that we have thoroughly cleaned out from between the fragments all the fringes or fragments of the capsule. It does show that no ossification has taken place yet. Three or four weeks ago this other skiagram was made, although taken a little more obliquely, and we can not see the line of repair, although bony union seems to be perfect.

After only four weeks' time this patient has neither a dressing nor a cast or support on the limb. If you saw this patient the day after operation you would have seen a dressing but no cast or support. From the time of the operation, in the last two or three years I have treated all these fractures without any support whatever and have begun passive movements the next day. If you will ex-

amine this patient, and it is not more than five weeks since the operation was done, and make passive motion, you can flex the knee perhaps thirty degrees almost without any tension at the patella. If you run your fingers over the front of the patella you will not be able to feel any notch or defect in the bone, for the reason that it has been obliterated by the callus.

I shall be criticised for advising that the limb be left without any cast or splint and flexed passively from the first day, but I am ready to assert that I consider this method of after treatment a distinct advance in our technique. Instead of requiring weeks or months to regain the lost motion due to fixation, these patients regain it immediately or rather never lose it. The constant massage which we are able to use probably hastens the repair. I allow the patients to walk in six weeks.



Fig. 2.—Fracture of patella 36 days after operation.

INTERPRETATION OF X-RAY PLATES.

Dr. Otto Schmidt:—The interpretation or the reading of a skiagraph in the majority of cases is a simple thing. It requires, of course, a proper plate, a certain amount of anatomic knowledge, and then visualization of the object to be understood.

There is considerable difficulty sometimes in deciphering plates, and in the course of time we have eliminated a large number of mistakes, and still there are peculiarities remaining. For instance, when the skiagraph was first introduced we remember very well the interesting baseball finger, and then we remember of the sesamoid bone. I remember distinctly when the sesamoid bone was taken for a bullet and an attempt made to extract the sesamoid bone. In fluoroscopy I remember positively two cases ten years ago that were diagnosed as aneurisms, but the patients are still alive, consequently they were in all probability not aortic aneurisms, and that was due to the fact of not knowing at the

time that the normal aorta could be seen in all instances. It depends a good deal on the direction of the ray, whether it is directed directly through the body or obliquely, consequently the aorta may be seen on either side of the spine, and unless one is aware of that fact he is apt to come to the conclusion that he sees an aneurism.

There are in the chest, as you have heard, a good many different conditions that are interesting to the fluoroscopist or skiagrapher. None of them is hardly more interesting than a pyo- or hydro-pneumothorax. This is of some interest because in some of these cases there is no fluid, and under such circumstances the diagnosis may be quite difficult. The chest is very transparent. I saw such a case about a year ago in which a pneumothorax occurred after ether anesthesia, about the second or third day, after there were some violent vomiting spells, a pneumothorax developed, which was not recognized for some time on account of the tension not being high in the cavity to develop tinkle sounds. But with the fluoroscope it was evident. The picture is more interesting when there is fluid present. You can see little waves which are produced not only by the respiratory action but by the cardiac action. If the fluid is thin enough, the wave will come up and fall over itself so to say. Then there are a number of instances in which mistakes may be made. For instance, in the so-called os trigonum. The os trigonum is a part of the astragalus, sometimes separate. Sometimes it is called secondary astragalus. It is the posterior end of the astragalus. Four or five years ago a man in Hamburg sued for damages on account of an injury. Skiagraphs showed fracture on one side in one astragalus, but when the other astragalus was examined by a skiagraph the same peculiarity was found, and attention was directed to this os trigonum. The man eventually was shown to be an imposter.

Again, exostoses in the foot bones have attracted considerable attention. Special study has been made of them in Germany with the *x*-ray, and it has been found that exostoses occur just at definite, distinct areas. Their pathology is quite obscure. Possibly in a large number of cases they are gonorrheal. On the other hand, there are peculiarities, such as a calcifying tendonitis, which will produce these exostoses without gonorrhea being present.

The so-called Vesalius's bone has been taken for a foreign body in the foot. It is a small bone on the side of the cuboid, where its existence in that instance had been forgotten.

One of the most interesting or curious things discovered by the *x*-ray was the so-called phleboliths. For a long time it was uncertain as to what these peculiarities in the pelvis were; it was noted early in pictures taken of the pelvis, that there often were small configurations up to the size of a pea, very well defined, circular, very frequently two or three or four, and often arranged in a sort of bed-like string. These configurations are found particularly below the spine of the ischium and leading from there down to the pubis, usually in a line slightly convex. For a long time it was not known what was to be done with these, and a number of them were diagnosed as stones in the ureter. Some of them were operated on and the supposed ureteral stone was not found. On examination of cadavers it was found that these pictures could be obtained by skiagraphing the pelvic organs, and on further examination calcareous conditions in the veins were disclosed which would explain the peculiar arrangement of these little bodies. Considerable discussion has arisen on this subject from time to time. Lately another author claims they are usually found in cases of sciatica, with arthritic conditions, and that these peculiar bodies are not really phleboliths, but that they are a bursitis calcuosa, a condition that has been described since the introduction of the *x*-ray much more frequently than formerly. They are also found in the arm and in other places. It is still a question whether these bodies are really phleboliths or possibly something else, but every one examining pelvic pictures will frequently find them. Again, we sometimes get shadows in a good many parts of the body that are difficult to interpret. The other day I was examining

some plates of the back. There were peculiar whitish areas or rather opaque spots that could only be explained by a tendonitis calculosa of some kind, not intervertebral, but some of the ligamentous tissues calcifying.

PLEURAL EMPYEMA.

Dr. Louis E. Greensfelder:—This is the skiagraph of a child with empyema, and it is so self-evident that it practically requires no interpretation. The child has been operated on and a large cavity drained; but the temperature persisted. A skiagraphic picture was taken and showed that almost the entire upper part of the chest contained pus. The skiagraph shows the position of the empyema and a shadow corresponding exactly to the lower portion of the abscess cavity. The tube is shown in the skiagraph, which is one we have used for the last year and is worth mentioning. It consists of a hard rubber tube, with two openings, through which another soft tube can be introduced, and in children can be utilized in place of any other operative interference. In this child, for instance, all that was necessary was to make a small opening with artery forceps, push the tube through, and the other tube being put inside. We may have a double tube for those who use the so-called Hancock tube.

In the past year we have been able to drain such cases very well. There is no particular danger of the ribs closing off the tube and interfering with drainage.

This case shows the value of the *x*-ray diagnosis. This child was treated for two or three years for different intra-abdominal lesions. Finally Dr. Schmidt saw the child, and because of the presence of a large amount of albumen in the urine he finally had an *x*-ray picture taken which showed a stone in the pelvis of the kidney. The kidney was exposed through a small incision in the pelvis and the stone extracted.

BONE CYSTS.

Dr. Daniel N. Eisendrath:—The condition which I want to speak of and show you is one that is attracting a great deal of attention on the part of both surgeons and pathologists, and it is necessary for me to give a brief sketch of the history of the subject.

About 1877 Virchow explained the theory, that all cases of cysts of the bones were due to degeneration of solid tumors, such as enchondromata and sarcomata, and von Recklinghausen came forward with the theory that they were not liquefactions of solid tumors, but the result of an inflammatory process. Up to the present time there has been considerable dispute as to which side is correct. The general tendency is that the theory of von Recklinghausen is the correct one, that a great many of these expansions of bone or bone cysts are in reality cases of degeneration of the medulla of the bone, with expansion of the products, a non-malignant process.

The case which I show you is that of a young boy who entered my service about the twelfth of last August. He came to Dr. Henderson with a spontaneous fracture of the humerus. The boy had punched another boy, and his arm broke in the middle of the humerus. Dr. Henderson was attracted with the ease with which this fracture occurred, and an *x*-ray picture showed a marked fracture. Dr. Henderson thought it was due to tuberculosis of the bone. At first it felt like a sarcoma, but was not. Able practitioners have made a diagnosis of sarcoma in similar cases, and have advised either amputation at the shoulder joint or a resection of the humerus. These cases occur much more frequently than we have thought. It is quite important to see them from the standpoint of the *x*-ray.

The first skiagram I am going to show you was taken five weeks after the injury, when the boy first entered the hospital. I call your attention, first of all, to a normal left arm, and then you will see the difference in contrast with the other picture between the normal arm and the one with bone cyst. You will notice a difference in the contour. You will notice that the epiphyseal line is plainly shown.

The next picture was taken five weeks after the injury, and from this I made a diagnosis of bone cysts. You will note the difference between this and a sar-

coma. Please observe the uniform expansion on both sides of the bone. In addition to that, you will see a uniform thinning of the cortex. It is broken through by the growth and the medulla itself is never uniformly expanded. That is the great difference between an *x-ray* picture of sarcoma and a bone cyst, together with the history. The fracture had already united at the time the boy came in.

The prognosis of cases of bone cysts is favorable. We made an opening in the bone, cut through the thin shell, scraped out its interior, injected bismuth paste, and the patient made a beautiful recovery. I showed this boy at a meeting of the Chicago Surgical Society, and one of its members challenged the accuracy of the diagnosis. But it is now six or nine months since the operation was done; we have taken *x-ray* pictures at intervals of two months, and the boy has remained perfectly well, and there is no doubt about the original diagnosis.

This next picture was taken about six weeks after the injury—in other words, about two weeks after admission to the hospital. You will see the thin cortex and the bismuth paste in the bone. The surface of the wound had entirely healed. You can scarcely see the point of fracture.

This picture was taken from a case described in an article by Bloodgood, which shows the extreme enlargement which can be attained in bone cysts. Bone cysts occur in young people and at certain points, namely, the upper end of the humerus, the upper end of the femur and upper end of the tibia.

This is from a case of Bockenheimer's, showing coxa vara in a bone cyst. You will notice some expansion of the upper end of the femur, quite marked both below the trochanter and above it.

The next is a section from a specimen of Rumpell's. It shows exactly the same conditions as in my own case, that is, a coxa vara like Bockenheimer's case. You observe the same uniform thinning of the cortex, and expansion of the medulla, and the pictures are quite different from what we will show you next in bone cysts.

This is another picture of Bockenheimer's case showing thinning of the cortex, the same translucency of the medulla, and the bending of the bone as the result of the cyst.

The next is a skiagraph showing spontaneous fracture in a bone cyst. A great many of the cases of spontaneous fractures are, in reality, cases of spontaneous fractures occurring in bone cysts, and many cases have been operated on as sarcomas. No less an authority than Professor Kocher told me two years ago that he had advised amputation in a case of suspected sarcoma, which turn out to be a bone cyst.

The next subject of interest, on account of its rarity, is bilateral nephrolithiasis. The first case in my own experience occurred last November, when a boy presented himself, through the kindness of Dr. Mortimer Frank, on account of pain over the left kidney. I told him that the rule we had in the hospital was to take pictures of both kidneys, but he did not see any reason why he should have skiagraphs taken of both kidneys. These skiagraphs show the importance of that. This skiagraph of the right kidney shows plainly. The right kidney pictures were taken separately. The right kidney shows the stones in situ. This is a rather new method of showing kidney stones, one stone being near the ureter. Not only in unilateral but bilateral nephrolithiasis usually the surgeon does either nephrotomy or pyelonephrotomy. We are making a study of the *x-ray* plates. By looking at them we can oftentimes tell the relation of the stone or stones to the twelfth rib from the peculiar shape. You can see the stone blocks up the ureter.

The next skiagraph (left kidney) is not one of my own, but was kindly loaned to me by Dr. Anna Braunworth. It is also instructive in this respect, namely, showing the importance of skiagraphing the two sides.

The next picture shows calculi on both sides, emphasizing again the importance of taking accurate pictures of both kidneys and ureters. You can see the relation of the stone to the ureter. This case needs to be operated on by nephrotomy, there being a number of stones on each side.

There is another point that is important, and that is, the difference in *x-ray* pictures between the length of the twelfth rib. The twelfth rib in both of these

pictures is shorter in one than in the other. You get much better pictures if the twelfth rib is very short than when it is long. If the eleventh or twelfth rib is long the stone oftentimes lies behind the shadow of the twelfth rib.

The box passed around contains the stones from the left kidney, the first kidney that was operated on. The boy made an uneventful recovery.

In the next picture we have an example of a short twelfth rib. It shows the kidney stone much better than if the rib was long and projected down behind it. This is one side of Dr. Braunworth's case. The stone, you see, projects down into the ureter.

One point I desire to mention in connection with kidney stone is this: In taking kidney pictures patients should invariably be prepared properly. They ought to be purged thoroughly; they ought not to be allowed to take other than liquid food before taking a picture, and they ought to be flat against the plate; they ought to have the knees flexed in the manner we have shown you, and a diaphragm picture is absolutely essential in order to get a good view.

SARCOMA OF THE ILIUM.

Dr. L. L. McArthur:—I can not refrain from showing a sense of exultation and a feeling that the profession of Chicago is again to be congratulated on the early and advanced steps which it has again taken in *x-ray* work.

You have heard from Dr. Schmidt to-night. We are to be congratulated that we have here the man who first demonstrated in America the use of the *x-ray*. Again, we are to be congratulated that we have made in Chicago the very decided advance which Dr. O'Donnell has conferred upon the medical profession of the world. This ability to eliminate one-third or three-fourths of the thickness of a body in taking a picture brings about revolutions both in skiagraphy and perhaps in therapeutic effects.

I feel, too, that I ought to claim priority for Chicago on the ground of having had the first *x-ray* burn. Very early in the use of the *x-ray* in Chicago, being intimately associated in my professional work with Dr. Otto Schmidt, I sent a patient to his laboratory for exposure to find a bullet in the spinal canal. Unfortunately, we did not know how to take pictures at that time as well as we do now. Not getting a picture by fifteen minutes' exposure, we exposed for half an hour, and not getting one in half an hour, we took an hour. The individual had eleven hours' exposure in three days. This patient, an army officer, was ordered back to his post. Within a week he had itching of the skin of the abdomen, later eczema, then the characteristic burn, the most horrible I have ever seen. It involved from the lower third of the thorax and upper two-thirds of the abdomen, an area about eighteen inches long and nine inches wide. After six or seven months of local treatment and intense suffering without benefit the area was dissected off. The skin was undermined well around to the back, brought together in the middle line, except over the lower portion of the chest. A good recovery resulted.

Twelve years after the burn this officer fell from his horse in a tournament out West, bruised the scar, and developed carcinoma. The carcinoma extended over the entire cicatrix. He came here to have this carcinoma dissected off, undermining of the skin to near the middle line of the back, with suture in mesial line anteriorly, a good result being obtained. This is the longest time that has intervened from the time of an *x-ray* burn to the development of carcinoma of which I am aware.

RENAL CALCULUS.

It was my good fortune to demonstrate the first renal calculus that was demonstrated in America. The patient had me remove a stone (before we knew about the *x-ray*) from the right kidney. The urine remained cloudy and purulent. Then came the discovery of the *x-ray*. The patient said, "I don't want to be operated on again." I said to him, "If I can show you the shadow of a stone in your other kidney, shall I operate on you?" He replied, "Yes." We had a skiagram taken which showed a shadow of a stone in the left kidney. He was operated on again

and the stone removed. He made a good recovery. I presented him to the medical society; he never paid his bill. (Laughter.)

In 1898 I was called upon to deliver the annual address before the alumni of Cook County Hospital. I selected for my subject "The X-Ray," and urged in that address the importance of its utilization by the profession to protect themselves against the dangers of malpractice suits. I suggested the utilization and showed x-ray pictures as a means of demonstrating that there was pressure absorption by either inflammatory or neoplastic growths in bone. I showed plates in which sarcomata had caused absorption of bone. I showed plates in which granulomata, also tuberculosis, showed absorption of bone, and urged the utilization of the x-ray along these lines. That it has now become a standard method is, of course, known to you all; but in 1898 we were then only twelve or eighteen months from the time of the beginning of the x-ray or its discovery.

I have asked Dr. O'Donnell to show the plate of a case which was brought to the hospital and which I saw through the courtesy of Dr. Frankenthal. The patient had been treated elsewhere as a case of tuberculosis of the hip joint. On examination it did not appear to be a case of tuberculosis of the hip, for if motions were made slowly the limb could be put in any position. There was one of the characteristic shortenings or malpositions of the hip which ordinarily obtain, and physical examination showed that there was a thickening of the ilium. There was a tumor to be felt within the pelvis, and it involved the lateral wall of the pelvis. Finding that the tumor involved the wall of the pelvis, it was easy to see the pain was due to involvement by a growth of the psoas, iliacus and obturator muscles. That only when the muscles were put on stretch did the pain give symptoms similar to hip joint disease. An exploratory incision was made to demonstrate the exact nature of this growth, and the result proved it to be a carcinoma, and not a sarcoma, if I recall the report of the pathologist, Dr. Herzog. It seemed to the clinician impossible to have primary carcinoma of bone because we have not the epithelial structures in bone from which it could spring; but we were never able to demonstrate where the primary lesion was for this carcinoma. She had had a fibroid of the uterus removed successfully by Dr. Frankenthal a year or so previously, but no malignant disease was found at the time, though careful microscopic examination and search were made.

A CASE OF TRIFACIAL NEURALGIA, WITH SKIAGRAPHS OF UNUSUAL INTEREST.

Dr. D'Orsay Hecht:—The patient whose clinical history I shall briefly recite was consigned to my care through the courtesy of Dr. Ira Frank. The case is one of interest, I think, because of the train of symptoms, the efforts made to arrive at a precise diagnosis, particularly with the assistance of the x-ray laboratory facilities of this hospital, under the direction of Dr. O'Donnell; furthermore, because of the diverse therapeutic measures employed in the case, and as concerns the cessation of pain—the doubtful result. The patient was first seen by Dr. Frank in the summer of 1907, from which time up to the spring of 1908 she had undergone at his hands a series of rhinologic operations for nasal obstruction due to polypi and headache from sinus infection. Mrs. H. was referred to me for the first time in April, 1908, on account of pains strongly suggestive of trifacial neuralgia. By that I mean attacks of short, sharp, stabbing pains in the middle branch of the fifth nerve on the left side, the superior maxillary division. These paroxysms of pain could not well be mistaken for anything else, although they occurred in one decidedly neurotic and given to exaggerate and distort pain value. I gave her a deep alcohol injection after the manner fully described in the recent literature of this subject, with which doubtless you are all familiar. She received two cubic centimeters of a 75 per cent. alcohol solution, carried to the foramen rotundum, the point of cranial exit for the middle branch. This operation was done at my office, and attended with unlooked-for difficulty, because of the patient's frankly hysterical outbursts. For several days following I noted a spasmodic closure of the left eye, together with a swelling of the face, not unusual after injections, and an edema of the uvula and faucial pillars, which I could not account for. The spasms of pain ceased and did not recur for a period of

two months. As a result of the protracted series of nose operations and sinus investigations, giving rise to general weakness and nervous exhaustion, it was thought worth while to put the patient upon the rest cure treatment, thus affording an opportunity for regaining physical strength and nervous stability. That was done with good results and the patient returned to her home in June, 1908. In the fall the pains recurred with increasing frequency and severity and she was persuaded to go to another city in her own state, where she submitted to an operation which contemplated the occlusion of the infraorbital foramen with a metal screw to prevent regeneration in the fibers of an avulsed nerve.

In January, 1909, she returned to Dr. Frank again for a recurrence of the pain, with, in addition, a severe continuous frontal headache. This head pain warranted another careful investigation of the sinuses and called into service the x-rays. The first picture taken, and now thrown on the screen, is a lateral view of the skull, showing very clearly a screw in its place in the infraorbital foramen, occluding it for a distance of about $1\frac{1}{4}$ inches. I shall not dwell upon the surgical merits of this procedure, since it would take me far beyond the mere skiagraph demonstration. The picture reveals a normal condition of the teeth and jaws. The next picture, a full front of the skull, shows the screw in its antero-posterior direction, and a very dense shadow appears in the middle of the frontal bone, above and between the location of the frontal sinuses, sharply circumscribed and of the size of a tangerine. This shadow, appearing as it did in three consecutive pictures, taken with both hard and soft tubes, gave rise to much speculation. It could not be interpreted as pus, on account of its unusual demarkation, nor did it bear any relation to the sinuses. Coincident with this finding were clinical symptoms significant of intracranial pressure, such as cephalalgia, irritability, mental hebetude, and somnolence, a syndrome not inconsistent with cerebral neoplasm or lues. A tentative view was taken that the frontal shadow referred to might be caused by a luetic thickening or hypertrophy of the frontal bone. Specific treatment was carried out for a few days only, when it had to be discontinued on account of pyalism and iodism. The next picture, the fourth of the series, again shows the screw in place, and a long probe introduced into the frontal sinus, but the shadow seen in the former exposures over the frontal region has disappeared. Dr. O'Donnell, by the double tube arrangement shown you this evening, has been able to take this field and cut off entirely the density of the posterior half of the skull, and offers the suggestion that the frontal shadow previously noted must have been due to a posterior, possibly occipital, thickening, rather than a frontal one. This must suffice in explanation of this particular finding. As a matter of clinical interest I should add that the screw, because of its annoyance to the patient, was removed by Dr. Greensfelder, and a second injection of alcohol was given by me while the patient was still under the anesthetic, and again with negative result.

I have one or two more pictures to show you, concerning an entirely different condition in another patient. The picture you see is that of a boy who sustained an accident in flipping on one of our surface cars on the South Side. He suffered a severe trauma to the deeper lying structures at the right side of the neck without causing the skin to be the least bit broken. Examination of the motor and sensory pathways of the right arm reveals a radicular lesion—namely, a complete laceration of the fifth, sixth, seventh, eighth and first dorsal roots, in all probability, directly at the point of their emergence from the intervertebral foramina. The area of total sensory deficit is outlined, as you see, with the assistance of the high frequency current. So far as I know, this is the first time that the high frequency has been used for the purpose of outlining sensory areas. I would suggest its use and emphasize its accuracy. Whether it will prove practical, I am not prepared to say, but I think you will agree with me that it is at least a novel method for determining analgesia. This patient will be observed for some time, in the hope that some operative measure can be devised for giving some functional result to the arm, although it must be conceded that the outlook for such is most discouraging. With an arm that will in all probability have to be amputated it is indicated to adopt such neuro-surgical methods as are more experimental in their nature than practical.

GENERAL DISCUSSION.

Dr. Max Reichmann:—I shall not say anything about the interesting demonstration which Dr. O'Donnell has given us tonight, because I do not understand the theory of it. However, I am going to study the matter and perhaps may have something to say about it in the future.

As to the gall-stone case of Dr. Andrews, skiagrams of which he has shown, it has been my good fortune to see three gall-stone cases that were diagnosed by rentgenograms in my own laboratory. One of these patients was under the care of Dr. Otto Schmidt, and I do not know what became of that patient. Another case occurred in the practice of a country physician. The patient was operated on and the gall-stone found and removed. Another outside patient was operated on after two days and no gall-stones were found. I do not know what it was that cast a shadow on a plate.

With reference to mistakes in interpreting *x*-ray plates, I will only add my own experience. The viewing of many good *x*-ray plates will enable a man to make correct diagnoses if he be possessed of a fair knowledge of normal and physiological anatomy.

Cases of bilateral renal calculi, of which Dr. Eisendrath spoke, have occurred in my practice three times. I agree with him that it is important to take rentgenograms of both sides in every case.

As to the rentgenogram exhibited by Dr. McArthur, I presume he diagnosed the mass in the ilium as an osteosarcoma. If that is the case, I would not be of the same opinion, because osteosarcoma is a condition that can not be mistaken for anything else. The main features are the osteophytes which are produced by the spreading of the periosteum.

As to the shadow which occurred in the case of Dr. Hecht, it is nothing else than the shadow caused by the glabella.

The demonstration by Dr. Lackner gives me the opportunity of issuing a warning to the proposition against the promiscuous use of the fluoroscope, especially in children. If you take a litter of rabbits, cats or any other animal and expose one-half of the litter to the rays while keeping the other half out of the influence of the rays, the exposed animals will either die or show clear signs of lack of development. The Roentgen rays have the same effect on every young living and growing cell. Therefore we should be very cautious not to expose young children for any length of time to the Roentgen rays and avoid especially fluoroscopic examinations, the more as a roentgenograph of a child's thorax needs only a few seconds' exposure and does not have to be repeated.

DIAGNOSIS OF BONE LESIONS BY MEANS OF THE ROENTGEN RAYS.

DR. M. REICHMANN, CHICAGO.

The BULLETIN announces the title of my paper "Bone Lesions in Roentgenograms," but I would prefer it to read "Diagnosis of Bone Lesions by Means of the Roentgen rays," because diagnosis is the true aim of our art and we should do all we can to dispel the prevalent opinion, that the roentgenologist is nothing else than some kind of an amateur photographer and therefore any hospital nurse, steward, druggist, or even janitor, can be entrusted with the dangerous roentgen tube. Besides having the Roentgen technic at his finger tips, the roentgenologist must have a sufficient knowledge of normal and pathological anatomy and only then can he interpret his plate (provided it is technically faultless) correctly, and that means a correct diagnosis of the condition confronting him.

Allow me to put in a timely plea for abolishing, at least among the profession, the senseless and meaningless titles the roentgenologists are awarded with. Do we call a man who uses a phonendoscope for diagnostic purposes a telephone operator? Would a surgeon who uses saw, hammer and chisel in pursuit of his profession like to be called a medical carpenter?

Then why call the poor roentgenologists, many of whom sacrificed limbs, and even dear life, in their occupation. *x*-ray photographer, *x*-ray operator, *x*-ray professor, or what not? All over the civilized world the workers in this branch of

medicine are called roentgenologists, or, if the name Roentgen be one too hard to pronounce, let them be called radiologists.

The chapter of Roentgenology I am about to discuss shows more than any other the value of the Roentgen rays for diagnostic purposes. Before the Roentgen era, if a surgeon was confronted with a diseased bone of any kind, the only way to make the preliminary diagnosis certain was to perform an exploratory operation, wait for the microscopical examination, and even then it was in many cases impossible to know the border line between healthy and diseased bone tissue.

Only since the advances made in the technic of Roentgenology are we able to make an absolute certain diagnosis of the nature and the limits of the different lesions of the bones without subjecting the patient to all the troubles and worries of an exploratory operation. Many excellent brains worked together before this purpose was attained and I can not abstain from mentioning the names of von Bergmann and his assistant, Rumpel, who, by the publication of his wonderful atlas on this subject in 1908, put this work upon a solid foundation and scientific base. In discussing the Roentgen diagnosis of bone lesions we will first take up the tumors.

ENCHONDROMA.

This tumor is mostly found upon the metacarpal bones and the phalanges. The roentgenogram shows a number of characteristic points—namely, spherical configuration, sharp definition of the edges, the base adherent to the bone is broad, and the homogene structure interspersed with particles of cartilages.

EXOSTOSIS.

Structure the same as that of the bone, configuration like a thorn or a tuber, sometimes like a stalactite. The seat of these bone tumors is mostly in the neighborhood of the epiphyseal line and, furthermore, is their multiplicity noticable. From the roentgenogram is it easy to form the idea that enchondroma and exostosis are, if not identically so, of close relations. In my opinion Rumpel is right when he mentions the close relationship of enchondroma and

OSSEOUS CYSTS.

These tumors are also found at the epiphysis of the long bones characterized in the roentgenogram by a pale zone, which is distinctly separated from the normal structure of the bone and shows numerous osseous septa within the thin wall of its corticalis.

SARCOMA.

1. Myelogene or Central.—Predominate at the lower epiphysis of the femur, tibia, humerus and radius, and show the absence of osseous structure, so that the bones appear as if a piece was punched out of them.

2. Periosteal or Peripheral.—The characteristic appearance of these tumors in the roentgenogram is given by the translucency of the tumor as well as the manifold proliferations of the periost.

It is apparent that the differential diagnosis between a central and a peripheral sarcoma of bone is of the greatest importance in the further handling of the case; in the first case an excochleation of the tumor may bring permanent recovery, while in the latter even an enucleation in the nearest healthy joint is more or less of paliative nature.

As far as the differential diagnosis between sarcoma and other lesions of the bones, especially arthritis deformans hypertrophica and tuberculosis, is concerned, we will see later on that the characteristic aspects of the latter lesion as shown in the roentgenogram are so marked that a mistake is hardly possible; but a warning must be given especially to the beginner not to confuse a tabetic joint with a sarcoma, especially the osteophytes of the first with the periosteal proliferations of the latter.

CARCINOMA.

The roentgenogram of a metastatic carcinoma of a bone shows invariably such destruction of all layers of bone tissue that the picture appears like blotted out in comparison with the adjoining healthy bone tissue.

We now will say a few words regarding the inflammatory processes the bones are often afflicted with.

OSTEOMYELITIS.

In the foreground of this condition is the periostitis and the ostitis, hypertrophic conditions of the periost and the corticalis with necrosis (sequester or abscess formation).

TUBERCULOSIS.

The characteristic feature of a roentgenogram of a tuberculous bone are the predominant atrophy, which can be so marked that it is sometimes very difficult to differentiate between bone and surrounding tissue. This condition is in direct contrast with

SYPHILIS.

Where sclerosis and hypertrophy predominate. Only in one syphilitic condition, the so-called dactylitis syphilitica, do we not find these two conditions; but we find instead a marked periostitis, which gives a picture of a double periosteal sheet, which is not found in any other bone disease.

FULTON COUNTY.

The forty-sixth meeting of the Fulton County Medical Society was called to order by President Cluts in the Churchill House parlor at 1 p. m. The report of the secretary on the applications of Drs. McCumber and Richards stated that Dr. McCumber withdrew his application and nothing had been heard from Dr. Richards. The report was accepted and the matter was referred to the Board of Censors. Drs. Long and Toler were elected to membership. Applications from Drs. Jennie W. Parks, of Cuba; G. C. Black, of Table Grove; R. W. Harrod, of Avon, and Dr. C. N. Allison, of Canton, were read and referred to the Committee on Membership. Drs. Stoops and Rogers moved that the chairman appoint a committee to draft resolutions asking Representatives and Senators to vote against the Osteopathic Bill now pending before the state legislature; carried. The president appointed Drs. Shallenberger and Stoops on this committee, who later reported the following:

Resolved, That the enactment into law of House Bill No. 214 and Senate Bill No. 173 is not to the interest and health of the people of Illinois, and we are unalterably opposed to such enactment. We beg of you to use all of your influence to honorably defeat such measures.

The report of the committee was adopted and the secretary was instructed to send a copy signed by each member present to each Representative and Senator from this district. Dr. Boynton was the only member on the program present and his paper inaugurated a general and very interesting discussion. Drs. Oren and Chapin moved that the delegate to the state meeting be instructed to investigate with the House of Delegates as to Dr. Simmons' irregularities. Carried. Notice was given by Dr. Rogers that an amendment to Section 7, Article 5, of the by-laws would be presented.

The following members were present: Drs. Cluts, Boynton, Parker, Howard, Robb, Stoops, Snively, Rogers, Ray, Reagan, Parks, Chapin, Sutton, Nelson, Adams, Blackburn, Harrod, Kirby and Totat.

Collections: V. C. Morton, Raymond Richards, Geo. S. Betts, J. P. Long, I. L. Beaty, E. O. Onion, T. C. Toler, W. S. Strode, G. C. Black, E. S. Parker, E. M. Priece, H. H. Rogers and Jennie W. Parks, \$3.50 each, making a total of \$45.50.

Adjourned.

D. S. RAY, Secretary.

JACKSON COUNTY.

The second quarterly meeting of the Jackson County Medical Society was held in the office of Dr. C. G. Molz, Murphysboro, Ill., Thursday, June 17, 1909. Those present were Drs. Ormsby, Roth, Grizzel, Horseman, Sabine, Molz and Essick. Visitors, Dr. Louis E. Rolens, of Dixon, Mo., and Dr. R. L. Wayman. The Committee on Public Health and Legislation reported that Mrs. Helen M. Costes, who had been vending Viava treatments in this city, had been properly attended to by the authorities and was fined \$100 and costs. Viavi operations are ancient history in this vicinity now. The secretary was instructed by the president to notify Dr. Egan to institute proceedings against one J. A. Davis, alleged to be illegally operating in this and neighboring cities.

Dr. H. C. Horseman, of Vergennes, Ill., reported two cases of tubercular meningitis that had been under his care. Dr. Roth opened the discussion, followed by Ormsby, Sabine, Grizzel and Molz. Dr. Molz presented a typical case of progressive muscular atrophy. The doctor gave a very interesting talk concerning the history of the case. Dr. Molz also presented a preserved specimen of hydatidiform mole that he had secured but a few days previous. Several instructive talks followed this. Dr. H. H. Roth reported a case of chronic appendicitis complicated by splanchnoptosis that had been successfully operated, an appendectomy and gastropexy having been performed by Dr. W. C. Hill. Dr. Molz, having attended the Mayo clinic this year, closed the program with an interesting thirty minute talk on "Impressions of the Mayo Clinic."

MADISON COUNTY.

By special invitation the society met at the Lutheran Hospital in Granite City on Friday, June 4. It was a large and enthusiastic meeting, with Dr. S. T. Robinson in the chair. Those present were: Drs. Zoller, Ferguson, Tibbets, Robinson, John L. Sims, Hermann, Luster, Wahl, Foulds, Everett, Schreifels, Cook, J. W. Scott, R. B. Scott, Early, McNary, Harlan, Burroughs, Binney, Merwin, Pfeifferberger, Engel, Tulley, Ihue and E. W. Feigenbaum, Lay visitor, Rev. A. H. Alnstedt, superintendent of the hospital. The applications for membership of Dr. Chas. G. Schmidt, of St. Jacob, and Dr. Emil H. Hermann, of Highland, were received, and upon favorable report by the Board of Censors both were duly elected. Dr. T. L. Foulds, our delegate, and Dr. J. M. Pfeifferberger, our alternate, gave us a very graphic report of what they saw and heard at the state meeting, which contained much that was instructive and valuable, and the society, by vote, determined to send a larger delegation to the state meeting next year than ever attended before.

The annual president's address was then delivered by Dr. Robinson, who chose as his subject "*Some Diabetic Obiter Dicta*." This was a carefully prepared paper, showing considerable study and bringing out the details of present treatment, with especial reference to dietetics. The society tendered a vote of thanks to the speaker and by vote instructed the secretary to send the paper to the *THE JOURNAL* for publication.

Dr. J. M. Pfeifferberger, of Alton, was elected as our member of the medico-legal committee. After a vote of thanks was tendered the hospital for courtesies extended, the society adjourned to meet in Edwardsville on the first Friday in September.

This society is enjoying an era of great prosperity, and it will not be long before every eligible doctor in the county will be a member. The fraternal feeling among the members is increasing to a marked degree and the scientific work was never better. There is a movement afoot to give an annual banquet to the members and their wives some time this fall, to bring about a more extensive acquaintance among the profession and to foster the social side of the organization. It is also proposed to hold meetings monthly, instead of quarterly.

E. W. FIEGENBAUM, Secretary.

M'LEAN COUNTY.

The May issue of the *Bulletin* of the McLean County Medical Society contains the report of the secretary-treasurer for the year ending April, 1909, and the following report of the May meeting of this society:

SECRETARY'S REPORT FOR YEAR ENDING APRIL 1, 1909.

Membership	72
Deaths during year (Dr. O. Haering, Dr. D. T. Douglass)	2
Transfers issued (Dr. F. R. Morgan, Dr. A. F. Kaeser)	2
New members (Dr. W. W. Gailey, Bloomington; Dr. Perry L. Noggle, Cooksville)	2
Self-suspended for nonpayment of dues	3
Reinstated by payment of dues	2

TREASURER'S REPORT FOR YEAR ENDING APRIL, 1909—RECEIPTS.

From Dr. O. M. Rhodes, retiring treasurer	\$53.30
Membership dues and initiation fees	223.00
Floral contribution	14.00
Total	\$290.30

DISBURSEMENTS.

Secretary-treasurer's salary for two years	50.00
Rating books	13.05
Printing	15.65
Printing	4.35
Expenses secretary-treasurer's office	9.99
Floral tributes	15.00
Dues, state society	145.50
Total	\$253.54
Cash on hand April 6, 1909	1.36
Cash in bank April 6, 1909	35.40
Total	\$290.30

The meeting of the McLean County Medical Society was held in the City Hall, Bloomington, May 6, 1909. Dr. E. Mammen, president-elect, made a few introductory remarks bearing on progress in the work of the society. The minutes of the previous meeting were read and approved. The Board of Censors reported favorably on the application for membership, by transfer, of Dr. I. M. Miller, of Saybrook. He was elected by unanimous vote.

Dr. A. L. Fox reported the case of a plumber who, while drinking city water, broke out with an annoying rash. When drinking other water this disappeared, but reappeared each time on drinking city water.

Dr. Godfrey moved that the McLean County Medical Society adopt the *Bulletin* as its official organ, to be edited and managed by the president and secretary. It was carried unanimously.

Dr. R. O. Graham, A.M., Ph. D., gave a very interesting and instructive lecture and demonstration on water tests and Bloomington waters, which was followed by general discussion. A vote of thanks was tendered Professor Graham.

ABSTRACT OF DR. GRAHAM'S PAPER.

There is danger to the farmer from the water of wells the bottom of which is below the seepage of the barnyard. Or the water in these wells may be contaminated by mice and rats or by the fertilizing of lands around the wells. Wells in cities are always dangerous. There is one in the northern part of our city which is responsible for the death of three of our citizens. Rarely city wells contain water fit for use. They are always contaminated by disease germs. Sometimes there are cesspools all around a well. The color of water, its clearness, does not indicate its purity. Cistern water is not pure, especially when yellow. That indicates the presence of organic impurity. Cistern water is contaminated

by the air through which it falls, by the roofs from which it flows. However, this may be purified by filtering and treating.

Chlorin in water indicates the presence of common salt. This in itself is not dangerous, but is an indication of urine contamination, which means contamination from a cesspool or stable drainage. Chlorin should not run over 20 parts per million. Even this amount in connection with heavy ammonia should condemn the water. It means contamination from animal sources, which is far more dangerous than from vegetable sources. In 1891 Bloomington water contained from 6 to 7 parts chlorin. There has been an increase since then so that there are now 12 to 14 parts per million. It contains from 1,050 to 1,100 parts per million of solid matter. After boiling, settling and airing, Bloomington water is the best water in the world for drinking purposes. It is then just as good as purchased water. A supply of soft water would aid the city of Bloomington in that this could be used in steam boilers for factories, and they would thus find a special inducement to locate here.

As population increases the problem of the water supplies of our cities is becoming a more and more perplexing one. How shall we keep a pure supply, with constantly increasing sources of contamination? I believe the best suggested solution, and one now being put into successful operation in many cities of Europe and in Philadelphia, Pa., will be found to be the ozonization of the water supply. This process is carried out by drawing air into a cooling room, where, by means of liquid ammonia pipes, as in the ice plant, the water is frozen out of the air and this air is drawn into another chamber where numerous dynamos are constantly discharging heavy electric currents between the poles, thus changing much of the oxygen of the dry air to ozone, a form of oxygen specially active in the work of oxidation. This ozoned air is pumped from the electric chamber directly into the bottom of the standpipe and is allowed to bubble up through the column of water, thus bringing out all organic impurities and disease germs and sending out for consumption a fine and pure table supply, even from contaminated sources. Bloomington water, after being first exposed to a "settling process," thus getting rid of a goodly portion of the minerals, and then treated by the electric process, would give to our city a cold, sparkling beverage, pure, healthful and fine as could be demanded by the most fastidious. The initial expense would be considerable, but Bloomington owns her own electric plant, and after installation the expense of treatment would not be serious.

QUESTION OF CONSERVATISM.

First, find a feasible and practical method of saving for our use a fraction of the vast floods of water that sweep past us down the valley; then establish plants for proper purification, and Bloomington's problem of future supply, the most important now before her, will be solved."

The June *Bulletin* gives a report of the June meeting, at which the Board of Censors reported favorably on the application of Dr. R. L. Eldredge, of Arrow-smith, who, was unanimously elected to membership. An outline of the program for next year, beginning with the September meeting, was submitted by Dr. O. R. Rhodes. The society adjourns during July and August.

Dr. Chapin read a paper on "Insanity, Its Forms, Prognosis and Treatment," of which the following is an abstract: Insanity is very difficult to define. Spitzka's definition, though long, is probably the most satisfactory. Each author and each institution usually has a different classification, most of these being so mystifying and incomprehensible to any but experts that they cause the general practitioner to shun the subject. The old fashioned classification of mania (acute, recurrent and chronic), melancholia (acute, simple and chronic), alternating, or circular insanity, paranoia, general paralysis, dementia (primary and terminal), epilepsy with insanity, and idiocy, is a fairly good working classification for the general practitioner.

Etiology has much to do with determining the prognosis. As a general proposition the more acutely an insanity begins the better the prognosis. A patient

of whom you can say that on a certain day he became insane has a very good chance for recovery under proper conditions. A person who drifts into the insane state has not so good an outlook. On account of the previously existing instability of the nervous system, there is always some danger of a recurrence of mental trouble after apparent recovery.

Institutional treatment is probably best, but the feeling among the laity that a certain amount of disgrace is attached to residence in a state hospital and the expense of a private sanitarium often make it difficult to secure early commitment. All suicidal or homicidal cases should at once be committed to an institution. The public should be taught to understand that the state hospitals, which are well equipped and on the whole well managed, are primarily hospitals for treatment and only incidentally asylums for custody. Perhaps the cases that are likely to be of very short duration would better be cared for at home if it can be properly done and there is special contraindication. Regulation of the life and habits of the patient, restoration of sound bodily health by proper hygienic and medicinal means, the intelligent use of hydrotherapy, massage, diet, etc., and such medication as is indicated by the individual case, constitute the treatment most likely to be successful.

Dr. O. A. Kell, in the discussion, told of the classification and treatment used in the hospital at Kankakee and gave statistics of various types. In treatment few hypnotics are now given, the cold pack taking their place except in very violent cases. Patients generally sleep during this pack, which is frequently continued for an hour or more.

Dr. T. F. Tannus presented a patient with extensive burns of the third degree, involving both legs of the man, who fell into a tank of boiling water. The parts became infected. At the same time the patient was suffering with chicken pox. After the infection cleared up the outer skin formed by dissemination of epithelial cells from the surrounding skin, which made a complete new skin and the patient made an excellent recovery.

OGLE COUNTY.

The Ogle County Medical Society met in regular session in the chapel of the Old Sand Store, at Mount Morris, April 28, at 1 p. m. President J. M. Beveridge called the meeting to order. The minutes of the previous meeting were read by the secretary and same approved. The following members were present: Drs. Akins, Bowerman, Brown, Brigham, Beveridge, Beard, Hanes, Houston, Kretsinger, Powell and Price. The visitors were Drs. E. S. Murphy, of Dixon; C. W. McPherson, of Hazellunt, and J. P. Bywater, of Mount Morris. A very interesting and instructive paper was read by Dr. J. M. Murphy, of Dixon, on "The Diagnosis and Treatment of Surgical Lesions of the Kidney." The doctor took up, first, movable kidney—its diagnosis and various methods of treatment. His next subject, "Renal Calculus," was taken up and fully discussed as to diagnosis and best methods of treatment for renewal of diseased kidney. On motion of Dr. Price a rising vote of thanks was tendered Dr. Murphy for his excellent paper. House Bill No. 173 was taken up by the society and fully discussed, after which Dr. Beard moved that the secretary be instructed to at once send telegrams to each representative urging them to help kill the bill. This motion carried and messages were sent at once. Dr. Price moved that the expenses of the society be paid, which was carried. Dr. Beard moved that the next meeting of the society be held in Polo, which was carried. Dr. Kretsinger moved that the physicians of the place of meeting furnish the program, which carried. The meeting then adjourned to meet at Polo the third Wednesday in July, 1909.

DR. J. T. KRETSINGER, Secretary.

PIKE COUNTY.

A meeting of the Pike County Medical Society was held at Dr. Duffield's office, Pittsfield, Thursday, April 29. There were present the following: Drs. Thomas, McComas, Gay, Wells, Miller, Laey, Main, W. E. Shastid and Duffield, and Dr. Emma Gay and Mrs. Blanch Gay as visitors. The following officers were elected for the ensuing year: President, Dr. J. E. Miller, Pittsfield; vice-president, Dr. G. U. McComas, New Canton; secretary-treasurer, Dr. H. T. Duffield, Pittsfield. Dr. W. E. Shastid gave an illustrated address on "The Treatment of the More Common Injuries to the Eye." Several interesting cases were reported by different members and general discussions followed. Dr. J. S. Thomas was chosen delegate to the state meeting, with Dr. F. S. Gay alternate. It seemed to be the opinion of those present that the less attention paid to the osteopaths the sooner this freakish theory would subside. Simply confine them to their own claims and let them have it out among themselves.

H. T. DUFFIELD, Secretary.

PULASKI COUNTY.

The first quarterly meeting of the Pulaski County Medical Society was held at Mound City, April 7, at 1 p. m., with the president, Dr. Hall Whiteacher, in the chair. The following members were present: Drs. A. W. Tarr, Grand Chain; Hall Whiteacher and J. F. Hargan, Mound City; C. J. Boswell and H. W. Braun, Mounds; B. A. Royall, Villa Ridge; Will Whiteacher, Pulaski; L. F. Robinson, Ullin; M. L. Winstead, Wetaug. After reading and disposing of the minutes of the last meeting, the society was addressed by Dr. Hall Whiteacher on the subject of "Medical Legislation," and particularly in reference to the pending osteopath bill before the state legislature. The discussion became general and ended with a resolution, made by Dr. C. J. Boswell and unanimously carried, that each member of the society be assessed a sufficient amount to telegraph the wishes of the society to the members of the state legislature, informing them that the Pulaski county physicians were a unit in opposition to House Bill No. 173 and Senate Bill No. 244, then before the house. This matter being disposed of, the secretary's call for state and county society dues was taken up and each member present paid \$3.00 into the treasury for that purpose, and one member, Dr. W. C. Rife, who was ill, sent his in, making the collection for the day \$30, and \$6.60 additional to pay for telegrams as above stated.

The regular program was then taken up, and the first paper, by Dr. B. A. Royall, on "How Shall I Treat My Consultant in Country Practice," was discussed by every one present with some divergent views. The general consensus of opinion, however, being that "do as you wish to be done by" should rule in ethics. "Smallpox in Country Practice" was the subject of a paper by Dr. Will Whiteacher, of Pulaski, and was comprehensive and practical, the doctor having had a good deal of experience during the winter just passed. "What I Saw of the Medical Profession in Arkansas," by Dr. M. L. Winstead, of Wetaug, shed some light on a class of doctors most of whom claim to be too busy to read medical journals.

This meeting was a very pleasant and social one from start to finish. The discussions were good natured and the arguments used were made by men who are actively engaged in their profession, and their reasons for their opinions were manifestly drawn from actual experience and not from imagination, as is often the case. The profession in Pulaski county is probably as prosperous as a whole as any urban county in the state. Three of the members present at our last meeting were the presidents of national and state banks, two were postmasters and two mayors of the villages in which they reside. The doctors in Pulaski county are the leaders of their respective neighborhoods in matters of education, finance and politics and are strictly in front in about all lines that tend for the advancement of our portion of the state.

M. L. WISTEAD, Secretary.

RANDOLPH COUNTY.

The Randolph County Medical Society held its regular quarterly meeting at Chester April 13, at 1 p. m., in the Court House. The meeting was called to order by the president, Dr. H. L. Gault. The minutes of the previous meeting were read and approved. A number of letters were read by the secretary, Dr. Steele, from J. A. Egan, secretary of the Illinois Board of Health, pertaining to the Osteopathy Bill—Senate Bill 214, House Bill 173—which had been brought up before the Legislature. A resolution was presented by Dr. H. C. Adderly to the society to make a protest against those bills and to inform our three representatives and senator that the members of this society bitterly oppose the granting of such a license, as we have a sufficient board already selected by the state to examine all applicants to practice medicine in this state.

Dr. N. R. Ritchey's name was presented by Dr. Cyrus Anderson, of Menard, as a member to join the society. Dr. Adderly suggested the regular rules be suspended, and on a vote of the members present Dr. Ritchey was accepted as a member of the society.

The following members were present: Drs. W. R. McKenzie, H. C. Adderly, E. L. Hill, J. W. Smith, Cyrus Anderson, H. L. Gault, A. D. Steele, and the following were visiting physicians: Dr. Douglas Singer, of Kankakee; J. W. Smith, of Cutler, and Dr. Boolingner, of Waterloo. Dr. Anderson read a very interesting paper on "Motor and Physical Reduction of the Insane," which was discussed by Drs. Gault, McKenzie and Singer. Dr. Gault was selected as delegate to the State Medical Society meeting at Quincy, May 18-20, with Dr. C. G. Smith, of Red Bud, as alternate. Dr. W. R. McKenzie was selected by the society to represent it on medicolegal defence. Dr. Adderly made a motion that the efficiency of the society will be enhanced by changing the meetings from quarterly to bi-annual meetings. Hereafter the society will meet the first Tuesdays in May and September. Sparta was selected as the next place of meeting, on Sept. 1, 1909.

VERMILION COUNTY.

The Vermilion County Medical Society met in regular session at the City Hall on Monday evening, May 10, 1909. The following members were present: Drs. Joseph Fairhall, Russell, Wilkinson, Taylor, Cochran, Gleeson, Clay, LeRoy, Jones, E. E. Clark, Poland, Guy, R. A. Cloyd, R. N. Cloyd, W. Brown, Cruikshank, Barton, Clements, Dale, Becker, Hatfield, Cooper, Walton, Kingsley, Williamson, Miller, Glidden, Sims, Baldwin, Steely, Spinning, Wilson, Hickman, Crist, Coolley and Evans.

The meeting was called to order by the president, Dr. Stephen C. Glidden. The minutes of the April meeting were read and accepted, after which a most interesting and instructive program followed. Dr. Oliver S. Ormsby, of Rush Medical College, Chicago, was the speaker of the evening and we were given a stereopticon lecture and talk on "The Newer Methods of Treatment of Syphilis." This was one of the finest lectures the society has ever listened to, as Dr. Ormsby is a lively talker and held the interest from start to finish. There was never a dull moment during the entire lecture, and all agreed that this meeting was the best in the history of the society. The society expressed its appreciation of Dr. Ormsby's most excellent lecture and demonstrations by a rising vote of thanks.

Other cases of skin diseases were demonstrated by Dr. Ormsby after his lecture, among which was a case of "Nævus" of the palms and soles in a man aged about sixty-five years. Dr. Ormsby stated this to be a very rare case.

The meeting adjourned to meet again June 14, 1909.

GEORGE STEELY, Secretary.

Meeting of June 14, 1909.

The following members were present: Drs. Adsit, Miller, Gleeson, Leo Fairhall, Dale, Cruikshank, Barton, Clay, Baldwin, Michaels, McIntosh, Fithian, Leitzbach, LeRoy Jones, Taylor, Allison, Wilkinson, Becker, F. N. Cloyd, Butz, Solo-

mon Jones, Cochran, Crist, Chaffee, Glidden, Steeley Coolley, Williamson, Poole, Evans, Clarridge, St. Elizabeth's Hospital, guest, Schmidt and Kingsley.

Minutes of the May meeting were read and accepted. Dr. L. E. Schmidt, of the Northwestern Medical School, Chicago, addressed the society on "The Medical and Surgical Treatment of the Genital Tract," with special reference to the surgical treatment. All the important and most common diseases of all the genital organs with the newer methods of treatment were covered by Dr. Schmidt. Special reference was made to the diagnosis and treatment of disease of the seminal vesicles, and how often diseases of this part of the genital tract was overlooked and mistaken for appendicitis by the general practitioner. Dr. Belfield's operation, "Vasectomy," was thoroughly described with its indications and advantages as a prophylactic remedy. Dr. Schmidt's address was full of interest and of great value to every member present. The society expressed its appreciation of Dr. Schmidt's excellent lecture by a rising vote of thanks.

Following the program light lunch and cigars were served, and during this time the meeting was temporarily adjourned. The remainder of the evening was spent in a general and informal discussion of diseases of the genital tract.

Dr. S. C. Glidden, president of the society, gave the members present an idea of the "doings" of the Vermilion county delegation at the Quincy meeting. Vermilion County Medical Society feels very proud in securing the "1910" State Medical Society meeting for Danville, Ill., and thanks all who favored us with their aid. In return we will show our appreciation by endeavoring to make the Danville meeting a banner meeting for entertainment, program, attendance, and in every way a "Hummer." We want every member of the state society to work hard for this meeting in some manner. Promise yourself, right now, that you will attend the state society meeting at Danville, Ill.

GEORGE STEELY, Secretary.

WABASH COUNTY.

The regular meeting of the Wabash County Medical Society was held at Allendale Tuesday, April 27. The meeting was called to order by the president, Dr. C. E. Gilliatt. The following members were present: Drs. J. B. Maxwell, L. J. Lescher, S. W. Schneck and W. E. Mercer of Mt. Carmel, E. A. Buchholz of Keensburg, R. J. McMurray of St. Francisville, and Drs. C. E. Gilliatt and J. J. McIntosh of Allendale. Program—Clinical cases: Dr. S. W. Schneck reported a case of tubal pregnancy, resulting in tubal abortion, and the autopsy showed the peritoneal cavity filled with blood and clots, death having been caused by shock and hemorrhage. Dr. Schneck also reported a case of pelvic cellulitis with treatment. Dr. L. J. Lescher reported a twin pregnancy having separate sacks and placenta, the first child being born alive, but the second was dead and partially decomposed, having been dead several weeks.

The following papers were read: "Acute Bronchitis," Dr. J. B. Maxwell; "Different Physical Signs and Symptoms of Lobar and Lobular Pneumonia," Dr. J. J. McIntosh; "Treatment of Lobar Pneumonia, Ancient and Modern," Dr. C. E. Gilliatt." On account of the absence of some that were to take part on the program the following subjects were generally discussed by all present: "Different etiology and Bacteriology of Lobar and Lobular Pneumonia," "Treatment of Lobular Pneumonia." Dr. R. J. McMurray related some of his most interesting obstetrical cases occurring in his practice during the last thirty years.

Bill of the secretary for postage, \$2.81, was allowed. On account of the inability of the regular elected delegate to attend the state meeting Dr. R. J. McMurray was elected delegate and Dr. W. E. Mercer as alternate. It was decided that the next regular meeting be held at some other place outside of Mt. Carmel, the place to be decided upon later. Drs. Gilliatt and McIntosh entertained all who came at dinner and supper, and those who failed to attend missed one of the best numbers on the program.

DR. W. E. MERCER, Secretary.

NEWS OF THE STATE

PERSONAL.

Dr. G. W. Boot, Evanston, sailed for Europe June 30.

Dr. and Mrs. Bernard Fantus sailed for Europe June 15.

Dr. and Mrs. Heman H. Brown, of Chicago, have sailed for Europe.

Dr. and Mrs. Arnold C. Klebs, of Chicago, sailed for Europe May 23.

Dr. William F. Rittenhouse, of Chicago, has been elected president of the Menoken Club.

Dr. Martha Hayward has been appointed superintendent of the Aurora City Hospital.

Dr. William H. Ludewig has been elected president of the Rock Island Board of Health.

Dr. Edward A. Fischkin, of Chicago, has been elected president of the Chicago Hebrew Institute.

Dr. William A. Pusey has been elected president of the American Dermatological Association.

Dr. C. G. Farnum and wife, of Brimfield, sail July 1 for a year of study in Vienna and Berlin.

Dr. Alvard G. Durkee, Pontiac, is at St. James Hospital, recovering from an operation for appendicitis.

Dr. Flint Bondurant has been appointed bacteriologist in the office of the State Board of Health, Springfield.

Dr. Arthur P. Leipold, Moline, has been elected supreme medical examiner for the state of the Home Fraternal League.

Dr. George S. Duntley, Bushnell, has succeeded Dr. William E. Haines, resigned, as local physician for the T., P. & W. Railway.

Dr. George H. Stacy has resigned as pathologist to the Illinois Central Hospital for the Insane, Jacksonville, and will practice in that city.

Dr. Homer M. Little, East St. Louis, has returned after eighteen months abroad. While in Vienna, Dr. Little was elected secretary-treasurer of the American Medical Association of Vienna.

Dr. Albert N. Mueller has been appointed health commissioner of Rock Island, and Drs. William H. Ludewig, Michael J. O'Hern, Frank H. First and Joseph R. Hollowbush have been appointed members of the board of health.

NEWS.

June 5 was "Hospital Tag Day" for the new hospital in DeKalb.

By the will of the late S. E. King, Ottawa, \$40,000 is devised for an annex for Ryburn Hospital.

There is a splendid opening for a qualified young physician in Maryville, Madison County, Illinois.

The Galesburg Hospital Association has let the contract for the erection of a wing and an annex to cost \$34,000.

Bennett College of Eclectic Medicine and Surgery announces officially the change of name to Bennett Medical College.

Dr. Darwin Kirby, having finished his internship at the Cook County Hospital, has located at Champaign, at 309 Illinois Building.

Emmanuel Hilb has offered to contribute \$15,000 to a fund to secure a hospital for Rochelle, provided a like amount is subscribed by the citizens.

The contract for the hospital for the Naval Training Station, North Chicago, has been awarded to the Noel Construction Company. The building is to cost about \$250,000.

Mrs. C. Hanson and Stanislaw Sajowski, accused of practicing medicine without license, are said to have been found guilty and fined \$100 each by juries in Municipal Judge Fry's court, Chicago.

Dr. Otto T. Freer has been elected a corresponding member of the Danish Otolaryngological Society in recognition of his contributions to rhinology and laryngology and his operative demonstrations in Copenhagen last summer.

The sanitarium for the Lake County Tuberculosis Institution, known as the Beach Tent Colony, has recently been moved to the newly acquired Grand Avenue site at Waukegan, Ill. There are more than 14 acres in the colony tract.

The dedicatory exercises of St. Margaret's Hospital, Spring Valley, were held June 3. The services were conducted by Bishop O'Reilly, of Peoria. The hospital has cost \$30,000 and is in charge of the Daughters of the Mary of the Presentation.

James A. Patten has donated \$40,000 for the erection of a home for nurses of the Evanston Hospital. The structure will be connected with the main hospital building and will provide accommodation for 40 employees, including nurses and internes.

The interest of Dr. Everett H. Butterfield, Ottawa, in the Ottawa Tent Colony, has been sold to H. B. Pettit, superintendent of the institution, son of Dr. James W. Pettit, and the entire control of the institution is now in the hands of Dr. Pettit and his son.

The class of 1899, Rush Medical College, at its tenth annual meeting and dinner, June 2, elected the following officers: President, Dr. Harry C. King, Fort Smith, Ark.; vice-president, Dr. Stephen E. Gavin, Fond du Lac, Wis.; secretary-treasurer, Dr. John B. Ellis, Chicago.

The superintendent of Wesley Hospital has made a protest to the Board of Education against the erection of a new school building on the block bounded by State, Dearborn, Twenty-fifth and Twenty-sixth streets, which is within the "Zone of Quiet" established around the Wesley Hospital.

The twenty-seventh annual commencement exercises of the College of Physicians and Surgeons, Chicago, the College of Medicine of the University of Illinois, were held June 5, when a class of 131 was graduated. The doctorate address was delivered by Dr. William E. Quine on "The Doctor and Religion."

June 27 and 28 were selected as "Hospital Days" to be devoted to raising funds for various denominational hospitals. Contributions were taken up on the streets and in the churches for this good object. The organization is composed of club women and representatives of about 25 denomination hospitals of Chicago.

On July 1 the State Hospital for the Insane, Bartonville, which was first known as the Illinois Hospital for the Incurable Insane, will be known as the Peoria State Hospital. The other state hospitals for the insane will hereafter be known as the Jacksonville State Hospital, Watertown State Hospital, Kankakee State Hospital and Elgin State Hospital, respectively.

The College of Physicians and Surgeons' Alumni Association of Chicago, at its annual meeting June 4, elected the following officers: President, Dr. Charles E. Humiston; vice-presidents, Drs. Calvin W. Harrison and Geoffrey J. Fleming; secretary, Dr. Philip H. Holmes; treasurer, Dr. Clyde D. Pence; neurologist, Dr. Louis J. Mitchell; member of the executive committee, Dr. Bernard Fantus.

At the seventieth annual banquet of the Alpha Omega Fraternity at the Great Northern Hotel, Chicago, about fifty members were present. Dr. John M. Dodson was toastmaster. The principal address of the evening was made by Dr. William E. Quine, and was a tribute to the life of Dr. Nicholas Senn, "who did more for humanity and the medical profession than all the other physicians in this great city combined."

The annual alumni meeting of the Alumnae Association of the Woman's Medical School of the Northwestern University, Chicago, was held June 7, and the following officers were elected: President, Dr. Eliza H. Root, Chicago; vice-presidents, Drs. Annette S. Mack, Chicago, and Harriet E. Garrison, Dixon; secretary, Dr. Anna Ross Lapham, Chicago; treasurer, Dr. Mary C. Hollister, Chicago; historian, Dr. Anna White Sage, Chicago; trustees, Drs. Louise Acres, Rachel Hicky, Carr and Rose Willard, Chicago.

At the banquet which closed the commencement exercises of Rush Medical College, June 1, Dr. Henry B. Favill gave an address on "Medicine in the Scheme of Conservation." The president of the university announced that the college will start next year free from debt, which has been cleared away by the generosity of the members of the board of trustees. The degree of doctor of medicine was conferred on a class of 57. Fellowships in special subjects and prizes were conferred on 8 members of the class. The doctorate address was delivered by President Edward J. James, of the University of Illinois.

The following item from the *Streater Times* recorded an account of one of our fraternity as living much beyond the usual number of years credited to a physician's life:

"Dr. W. T. Linn, near Herrick, about ten miles southeast of Pana, celebrated his 110th birthday yesterday. About 1,000 people helped him to celebrate the day. The celebration was held in the form of a picnic in the woods. Dinner was served at noon in picnic fashion. A good many people from Pana attended. Some people doubt Dr. Linn's age and he himself is not sure of it, but the majority of the people contend that he

is easily that old. Some of the oldest residents of Pana say that Dr. Linn was living there when they came, and at that time he was an old man and gray headed. Dr. Linn was formerly of Hillsboro and also of Pana. He used to peddle medicine through the country years ago and was quite successful. He made enough money to live on and settled on a farm near Herrick, where he has lived for the last twenty years."

PUBLIC HEALTH.

Scarlet fever has been reported as epidemic at Monmouth.

An epidemic of diphtheria is reported at Torrino, Williams County.

Smallpox has been reported as decreasing at Elm Grove and Tremont.

Measles have been reported as epidemic at Rockford, Lincoln and Ottawa.

Scarlet fever has been reported as epidemic at North Chicago. The schools of the village have been closed for the rest of the year.

Smallpox has been reported to be very prevalent through the state. Cases have been reported at Center Prairie, Marengo, Peoria, Herrin and Omega.

Dr. Charles E. Crawford, Rockford, state health officer, is said to have found 72 cases of smallpox in Margeno in 41 families. The patients are all under quarantine, and the regulations are being well observed.

According to the report of the Public Health and Marine-Hospital Service on May 21, more than one-eighth of all the smallpox in the United States between January 1 and June 1 was reported in Illinois. Of the total of 9,960 cases in the country, 1,257 were reported from Illinois, but only 11 of these were found in Cook County.

The omnibus appropriation bill which passed the house early this week gives the State Board of Health \$46,000 for the free distribution of antidiphtheric serum throughout the state. The last general assembly appropriated \$30,000 for this purpose. The State Board of Health has already been allowed \$4,000 for the free treatment of poor persons said to have been bitten by rabid animals or otherwise in danger from infection from hydrophobia. The appropriations for the State Board of Health have been materially increased.

The legislature has made an appropriation of \$235,000 for the establishment of an epileptic colony. The institution is to be located at Kankakee. The colony will consist of three cottages costing \$50,000 each, and it is the purpose to have them completed by the 1st of July, 1910. Each cottage will have a capacity of 100 patients and will be easily filled from the institutions at Dunning, Elgin, Watertown and Kankakee. The \$48,000 will be available as soon as the patients are in the cottages.

The Department of Health of Chicago has the following to say in regard to the state of health in Chicago, in the *Bulletin* of June 5, 1909: "Chicago has been healthier this year than last and more than 5 per cent. better than the average of the last ten years. The death rate of the first five months of 1909 was 14.93 per 1,000 of population per annum. Last

year it was 15.29. The average for this period for the last ten years is 14.70. The saving of lives during the current year has been entirely among children under five years of age, there being 274 fewer deaths at this age period than in the corresponding period of a year ago. Of this saving, 97.6 per cent., or 276, was among infants under one year of age. In all the other age periods there was an increased number of deaths. Between five and twenty years there were 11 more; between twenty and sixty, 75 more; over sixty years there were 89 more, and of unknown age there was an increase of 45. Deaths from diarrheal diseases were 40 fewer than a year ago; from tuberculosis, 98 fewer, and from impure-air diseases, 203 fewer. Aside from diphtheria the only marked increase in the five months has been from the chronic diseases and violence—causes that are only remotely amenable to sanitary administration. Of these, heart disease shows an increase of 204 more and cancer 40 more. There have been 128 deaths from typhoid fever during the five months, equivalent to an annual rate of 1.39 per 10,000 of population—the lowest typhoid rate ever recorded in this city for this period.”

The Rock Island City Council, at a recent meeting, passed an ordinance creating a city health department, and immediately the mayor made the following appointments for the board: Health commissioner, Dr. Albert N. Mueller; member of the health board (four-year term), Dr. W. H. Ludwig; member for three years, M. J. O'Hearn; member for two years, Dr. F. H. First; member for one year, Dr. R. J. Hollowbush. Dr. Mueller has made the following recommendations: That the health board be divided into subdivisions, these subdivisions to be as follows: first, division of contagious diseases; second, division of foodstuffs; third, division of nuisances; fourth, division of sanitation. Commissioner Mueller also presents a plan which he has fixed upon for the making of tests for the diseases among the children of the public schools. These tests are for the diseases of the eye, ear, nose, throat, etc., and can be made by the teachers of the school. The system is in use in Chicago and is working wonders on the health of the coming generation in that it gives a true insight into the condition of every school child. The report also contains a copy of a card warning which must be given the child by the teacher provided the test is not satisfactory. This card will notify the parent of the trouble from which the child is suffering and recommend its immediate correction. Dr. Mueller proposed to use the card system throughout the department of health of this city. The postal card system is to be used by the physicians for the benefit of the subdivision of contagious diseases; the card system is to be used in the subdivision of foodstuffs and in the subdivision of sanitation. The subdivision of nuisance is to be looked after by the health officer. In the subdivision of sanitation is included proper care of garbage and other matters. In the division of foodstuffs is included the milk tests, the laboratory and other food tests. The milk tests during the life of the present board of health are to be many, systematic and systematized by the use of a card system.

MEDICAL SOCIETY NOTES.

At a recent meeting of the McLean County Medical Society, Dr. S. G. Winter, professor of science, I. W. U., endorsed in his proposal to establish a pathological and bacteriological laboratory for the benefit of doctors who have specimens for examination. Dr. Winter's laboratory will be ready for business later in the summer.

The *Bulletin* of the McLean County Medical Society, published monthly after each meeting, was unanimously adopted at the May meeting as the progeny of the said society and will hereafter be a regular caller on all the members. By resolution the president and secretary of the society are to control its management. The *Bulletin* is sent to every doctor in McLean and adjoining counties who transact business in Bloomington. The May issue was 300 copies. A nurses' directory will be printed in the *Bulletin* beginning with the September issue.

CHANGE OF LOCATION.

Dr. W. A. Steele has removed from Chicago to Havana.

Dr. E. E. Sherman, of Patoka, has removed to Atwater.

Dr. Louis N. Tale has removed from Carthage to Brimfield, Ill.

Dr. Roy B. Roberts has removed from Augusta to Brimfield, Ill.

Dr. Robert D. Luster has removed from Chicago to Granite City.

Dr. O. B. Lambert has removed from Chicago to Calumet, Mich.

Dr. John C. Yates has removed from Peoria to New London, Wis.

Dr. Effie Current has removed from Danville, Ill., to McCook, Neb.

Dr. C. O. Donaldson has removed from Dwight to Kansas City, Mo.

Dr. S. Rachel M. Cooper has removed from Danville to Aurora, Neb.

Dr. R. T. Evans has removed from Sandridge, Ill., to Smithfield, Ill.

Dr. J. C. Anchor, of 4677 Prairie Avenue, Chicago, has removed to Modesto, Cal.

Dr. T. M. Dromgold, of Seneca, has removed to 7011 Kimbark Avenue, Chicago.

Dr. O. W. Lindorff has removed from Swedona to 212 South E Street, Monmouth, Ill.

Dr. D. D. Goldberg has removed from Maryville, Ill., to 3055 Easton Avenue, St. Louis, Mo.

MARRIAGES.

J. L. Cass, M.D., of Taylor, to Miss Alice Hazen, of El Paso, Ill., May 27.

WILLIAM FRANCIS LARKIN, M.D., to Miss Lenore Beck, both of Chicago, June 2.

ARNOLD C. KLEBS, M.D., to Mrs. Harriet K. Newell, both of Chicago, in Connecticut, May 22.

STANFORD K. WINSOR, M.D., Anand, British India, to Miss Bessie Marie Carroll, of Chicago, May 11.

EDGAR H. LITTLE, M.D., to Miss Gertrude Cline, both of East St. Louis, Ill., at Vandalia, Ill., May 24.

J. BENARD HASTINGS, M.D., of Alton, Ill., to Miss Elizabeth N. Morgan, of St. Louis, Mo., at Alton, Ill.

DEATHS.

JOSEPH B. KINLEY, of Chicago, 1885, died May 13, aged 49.

RYLAND D. PRATT, M.D., of Chicago, 1882, died June 1, aged 49.

ARTHUR M. THOME, M.D., of Chicago, 1851, died May 28, aged 86.

GEORGE ALBERT MOULTON, M.D., died in Alma, Ill., May 7, aged 49.

LEONARD C. WHITFORD, M.D., of Chicago, 1870, died May 26, aged 72.

MARTIN HENRY LUKEN, M.D., of Chicago, 1873, died June 5, aged 58.

CHARLES LUDWIG KOCH, M.D., of Quincy, Ill., died in St. Louis May 29, aged 50.

FLORIMAN JAMES TAYLOR, M.D., of Chicago, 1881, died in Drayden, Maine, May 24, aged 54.

JOHN J. SHUBERT, M.D., of Kankakee, Ill., died in the Presbyterian Hospital, Chicago, June 2, aged 49.

A. J. G. HALL, M.R.C.S., Edinburgh, Scotland, 1845, died at his home in Kinmundy, Ill., April 1, aged 90.

WILLIAM C. A. BLAUW, M.D. Bennett Medical College, Chicago, 1895, of Chicago, died in the Cook County Hospital Sept. 28, 1908, from chronic nephritis, aged 75.

FREDERICK WESLEY PARK, M.D. Beaumont Hospital Medical College, St. Louis, Mo., 1890; a member of the Illinois State Medical Society; died at his home in Fieldon, Ill., May 7, aged 42.

EUGENE LA FON NELSON, M.D. Rush Medical College, Chicago, 1864; assistant surgeon of the Eighth Illinois Volunteer Cavalry during the Civil War; died at his home in Springfield, Mo., April 20, from general debility, following cerebral hemorrhage, aged 69.

Book Notices.

THE POPES AND SCIENCE.—The story of the Papal Relations to Science from the Middle Ages down to the Nineteenth Century. By James J. Walsh, M.D., Ph.D., LL.D. 400 pages. Price, \$2.00 net; postage 15 cents extra. Fordham University Press, New York City office, 110 West Seventy-fourth street.

THE STORY OF TWO MOSQUITOES. By Charles Cummins Hunt, M.D., of Dixon, Ill. Under this title Dr. C. C. Hunt, ex-president of the Illinois State Medical Society, has, in a book of thirty pages, taken up the popular consideration of the causes of malaria and yellow fever and prepared an interesting lecture which was delivered to a popular audience in his home town. So much appreciated was

the lecture that Dr. Hunt has caused it to be printed in book form, and we believe he has done a distinct service to the cause of popular education on medical subjects by so doing. Therefore, in it is a tendency to enlighten the people on life lines and to bring about an appreciation of the enormous service done by mankind to the medical profession. The illustrations include half-tone portraits of Dr. Laveran and of Surgeon Major Reed, of the U. S. Army. We congratulate Dr. Hunt on the publication of this volume and wish more of our readers might get busy on other lines demanding attention for the good of the public health.

SAUNDERS' POCKET MEDICAL FORMULARY. By William M. Powell, M.D., Author of "Essentials of Diseases of Children." Containing 1,831 Formulas from the Best Known Authorities. With an Appendix Containing Posologic Tables, Formulas and Doses for Hypodermic Medication, Poisons and Their Antidotes, Diameters of the Female Pelvis and Fetal Head, Obstetric Table, Diet Lists, Materials and Drugs used in Antiseptic Surgery, Treatment of Asphyxia from Drowning, Surgical Remembrances, Tables of Incompatibles, Eruptive Fevers, etc., etc. Ninth Edition, Adapted to the 1905 Pharmacopeia. Philadelphia and London: W. B. Saunders Company, 1909. In Flexible Morocco, with Side Index, Wallet and Flap, \$1.75 net.

The Ninth Edition of Powell's Pocket Formulary has been thoroughly revised and reprinted. The number of editions testifies to the necessity for some such publication, and as it conforms in every manner to the United States Pharmacopeia, it will work for ethical medicine and against the prescribing of proprietaries. A vast number of valuable prescriptions are given, taken from the best medical authorities and in use in the most successful hospitals. We can recommend the book to our readers heartily.

TUBERCULOSIS OF THE NOSE AND THROAT. By Lorenzo B. Lockard, M.D., Laryngologist and Rhinologist to the Jewish Consumptives' Relief Society Sanatorium, the Y. M. C. A. Health Farm and the Evangelical Lutheran Sanatorium; one time Professor of Anatomy, Toledo Medical College; with 85 Illustrations, 64 of them in Colors. C. V. Mosby Medical Book and Publishing Company, St. Louis, 1909.

Dr. Lockard of Denver, who seems to have had an exceptional opportunity of observing tubercular diseases, in these passages has contributed a notable work upon these subjects. The author in his preface makes the following statements which are radically different from the views commonly heard: "Early lesions subjected to treatment are usually curable, and the advanced not infrequently so, and when these facts are recognized the pessimism that rules to-day will be succeeded by a rational optimism with the natural results thereof: more persistent, prompt and intelligent, and therefore more effective management of all such cases. The main objects of this book are to place before the profession the modern views concerning the early recognition, treatment and prognosis of the disease, in the hope that an increased faith in the efficacy of treatment and a full appreciation of the importance of early diagnosis and of routine examinations of the larynx in every consumptive will be engendered."

ERADICATING PLAGUE FROM SAN FRANCISCO—Report of the Citizens' Health Committee and an Account of Its Work. By Frank Morton Todd, historian for the committee.

Under this title a book of 313 pages has been issued, giving a statement of the immense work accomplished by the citizens of San Francisco in eradicating the bubonic plague from that community. The plague originally appeared in San Francisco in Chinatown in March, 1900. It persisted for more than four years, had 121 victims, mostly Orientals, of which but eight recovered. Upon its reappearance, in May, 1907, it was not confined to Chinatown, but appeared at different times in all parts of the city. Very few Orientals were affected, almost all of the 166 human cases, of which 77 died, being white persons, many of them of a good condition of life, subsisting on generous diet and dwelling in houses that would commonly be called "sanitary." The difference in mortality was prob-

ably due not so much to race or condition, but to early discovery and prompt treatment, while the causes of the change in the point of attack from Oriental to the white population are now well understood and demonstrate the correctness of the defense measures adopted.

It was with the second outbreak that the work of the Citizens' Health Committee had to do. This work was essentially social in character, its purpose being to bring about a general cooperation of the people of the city with the sanitary authorities. Its most distinct aim was to organize the community for the starving and destroying of rats. It was an enterprise with no guiding precedents among white populations, and one in which the means of organization, of educating the public to a knowledge of its danger and its defense, and of promoting effective action, had to be improvised in the face of prejudice and a growing peril. To-day there is no plague in San Francisco and no plague-infected rats are to be found there.

In connection with this work there were many notable features. In the first place, all classes of citizens united in the work. The appointment of positions was non-political and the total amount of graft exacted was \$5.00, the enterprising recipient being discharged before he got a good start on his road to affluence. It was found, of course, that rats were the cause of the epidemic, and the great work was the destruction of the rats. Dr. Blue, in his paper read at the last session of the Pan-American Medical Congress, which is reprinted in this book, draws the following lessons from the campaign in San Francisco: 1. The fundamental principle of plague eradication is rat eradication. 2. This can only be accomplished by a simultaneous attack upon the rat, his food supply and his habitation. 3. The permanent eradication of plague is directly dependent upon the amount and permanence of the rat-proofing done. 4. Hereafter quarantine against plague should be directed against rats rather than against persons and freights. 5. Plague may, and often does, exist in the rat population of a city for several years before it is discovered among human beings. It is therefore advisable for maritime cities to systematically trap and examine rats to determine the existence of infection among them.

Finally, that the Marine-Hospital Service, in cooperation with the citizens, were able to eradicate this epidemic without material damage to the social and business interests of a great city is a startling evidence of the advance of medical science and the efficiency of this great public agency.

ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF
THE ILLINOIS STATE MEDICAL SOCIETY

ENTERED IN THE SPRINGFIELD POSTOFFICE AS SECOND-CLASS MATTER.

VOL. XVI SPRINGFIELD, ILL., AUGUST, 1909

No. 2

ORIGINAL ARTICLES

DIAGNOSIS OF GASTRIC ULCER WITH DIFFERENTIAL DIAGNOSIS.*

CHRISTOPHER GRAHAM, B.S., M.D.

Physician to St. Mary's Hospital.

ROCHESTER, MINN.

Ulcers of the stomach and duodenum have a definite symptomatology. When they are located in the duodenal and pyloric areas, it is usually clear-cut and simple. When they are located in the pyloric end of the stomach or along the lesser curvature, we do not usually find marked variation in the course of the symptoms, but it is a fact that as the lesion is found farther and farther from the pylorus the symptoms may lose some of their clear-cut significance, and fail to give that almost pathognomonic course of the duodenal form. However, in the great number of peptic ulcers the type of symptom is fairly suggestive, and a careful development of the history will lead closely, not only to a good diagnosis, but often to a degree of precision in ulcer location.

What, then, is this train of symptoms that so closely typifies ulcer of the stomach? Consider, first, its chronicity. The patient rarely fails to relate clearly and precisely that it has been many years since he first began to experience gastric disturbance, mild perhaps in its beginning, of short duration and but little disturbing to his general health and usefulness. He will tell us that, as the years have gone by, the trouble has been of the same type, has gradually increased in severity until finally he has little or no relief. This period of chronicity varies from one to twenty years, often running thirty to forty-five. The average number of years in our series is between twelve and thirteen. The second characteristic feature and one usually clear to the patient is the periodicity of attacks. Early in the disturbance he may say the spells came spring and fall, and were not severely annoying. That they came

* Read before the fifty-ninth annual session of the Illinois State Medical Society, May 18, 19 and 20, 1909.

most often without discoverable cause, suddenly and continued days or weeks without interruption. Each day of the attack was a repetition of the preceding, each meal producing the same effect—first, comfort for one to five hours, then pain, gas, sour stomach and vomiting. Following these more or less prolonged spells came periods of relief, often suddenly, without known cause, or following a vacation or change of vocation. The periods of attack and relief alternate at irregular intervals for years, and continue for varying periods. The intermission gradually decreases; the attacks come oftener, increase in severity perhaps but slowly until the severer complications have crippled the efficiency of the stomach. Then the patient fails to reach at any time his normal condition, and may have no cessation of symptoms.

Are chronicity and periodicity peculiar to ulcer of the stomach? We find in gall-bladder disease, appendiceal colics and many general diseases, this chronicity and this periodicity. Gallstone and appendiceal attacks come irregularly, increasing in severity as attacks multiply. They appear and disappear suddenly, with the cause often as obscure as in ulcer. The so-called cure in each is only a part of the round of trouble. It is (1) the character of the attack, and (2) the peculiar manifestation of the separate accompanying symptoms that call for consideration in differentiation.

Let us consider the symptoms which accompany an attack of gastric ulcer; first, pain—this is the most constant symptom, in the absence of which some clinicians say we must not diagnose ulcer. Pain is usually epigastric and its field of radiation limited. It may be burning, gnawing, lancinating, mild or extremely severe, depending on location, extent and depth of ulceration, amount and degree of acidity and the persistence of accompanying spasm. Gas is usually present and varies from mild pressure to most extreme annoyance; usual also are sour eructations, water brash, vomiting of more or less intensely sour, acrid, bitter-burning fluid, which may be mixed with food. Some or all of these symptoms accompany an attack and each may be characteristic of ulcer, when considered in its peculiar relation to time. May not any or all of these symptoms be present in gallstone trouble or appendiceal attacks? All three—ulcer, gallstones, appendicitis—have pain which may be epigastric only, with any degree of severity. There may be gas, vomiting, sour eructations and acidity of the stomach complained of in all. Then chronicity, periodicity, pain, vomiting and gas are not of themselves characteristic of gastric ulcer. It is not the location of the pain that tells the story; it is not the kind of pain, nor its severity that points the way; it is not the presence of all, nor the severity of the several accompanying symptoms that makes pain, but it is (1) the *time* of pain or other symptoms, it is (2) the *regularity* of pain and other symptoms, and it is (3) the *means* by which the pain or other symptoms are relieved, that give the differential characteristics to gastric ulcer.

During a period of attack in gastric ulcer—an attack, the duration of which may be days or weeks—the patient complains more or less severely of pain, gas, vomiting, sour eructations, heartburn and sour stomach; he will say it follows meals, but it will be often found more

exact to say before meals. Usually one to five hours after a hearty meal the symptoms return, increasing in intensity until vomiting or irrigation has removed the acrid, acid material, or it has been neutralized by soda, or, as is more usual, until food is again taken. More or less complete ease follows food and drink, the heartier the meal the more pronounced and prolonged the comfort. Especially is this noticed early in the history, and when the ulcer is closely pyloric. This train of symptoms repeat daily during the period of attack with certain regularity after meals. This time after food varies but little for different individuals; indeed, is peculiarly exact for each. Just as surely and regularly as these symptoms present themselves are they controlled by food, drink, alkalies, vomiting or irrigation, until complications have changed the character of the disease. This peculiar cycle within the cycle is the characteristic of ulcer. Pain is the most constant factor, but ulcer may be present without pain. If gas, vomiting, distress or sour stomach is present, and appears and disappears with characteristic regularity before meals and after meals, then ulcer should be strongly suspected, even in the absence of pain. This type of symptomatology may be approached in hyperacidity, hypersecretion, some appendiceal conditions and the like, but there is no pathological condition that closely follows this train of symptoms, except ulcer of the pyloric end of the stomach. We believe that of all pathological conditions that approach pathognomonic symptoms none more closely reaches that rank than does uncomplicated ulcer at the gastric outlet.

These pathognomonic symptoms lose force if the position of the ulcer be cardiac, or on the greater curvature near the fundus, when the symptoms then are usually quite immediate. In end conditions as (1) wide destruction, (2) hour-glass stomach, (3) extensive saddle ulcers, (4) perforations and adhesions, and (5) in stenosis, there is a persistency of symptoms developed and the peculiar differential type is lost. There is pain, often severe, quite continuous, and it not only does not yield to food as before, but it is increased immediately, or nearly so, by it. Vomiting becomes irregular and more intense, though perhaps less frequent. The quantity increases and may be exceedingly acid and contain remnants of former meals. Gas appears at any or all the time, and is often distressing. The patient finds ease through careful diet, or finds the greatest comfort when the stomach is empty, rather than when filled. When these complicated pathological conditions exist, our difficulties are multiplied, because this latter group of symptoms is not peculiar to primary ulcer lesions. It is, however, common to its complications, to chronic gallstone cases, to cancer of the stomach, chronic appendicitis, pancreatitis, angina pectoris, kidney lesions and in many general systemic diseases. Therefore, in order to make a differential diagnosis, turn back to the carefully determined early history.

Complications: Perforation is not infrequent and is acute or chronic. The former is less often met and, when the anterior wall is the seat of perforation, untreated cases show a large mortality. Posterior perforations find protection and oftener become chronic. In acute perforations the pain is intense and calls for large doses of morphin, which may fail

to stay the pain. These perforations simulate acute gall-bladder infections or perforations, and may be mistaken for acute appendiceal attacks. The early pain is quite often near enough McBurney's point to mislead, if the examination be cursory.

Chronic perforation is frequent, and causes adhesions to neighboring organs, reduces the motility of the stomach, which, in turn, decreases motor power and increases secretion. This increased secretion adds to the obstruction by causing pyloric spasm, while the spasm again heightens acid secretion, increases the pain and threatens deeper ulceration. This action and reaction increases difficulties in diagnosis, as well as in treatment. These chronic perforations develop chronic symptoms, and each perforation may give us sudden, sharp attacks of peritonitis. When the ulcer is posterior these attacks are so closely allied to chronic gallstone colics that present symptoms alone will not furnish means of diagnosis.

Cicatricial formations are the commonest complications, and cover obstruction, hour-glass stomachs and other deformities. As a rule, obstruction is not difficult to establish. The usual symptoms of ulcer increase and become chronic. Emaciation and constipation are present. Vomiting of delayed food masses or remnants found at test meal are usually conclusive evidence. Hour-glass stomach and other deformities, due to adhesions, contractures and band formation, have chronic symptoms and, like pyloric stenosis, produce retention, stagnation and obstruction, but the symptoms are not characteristic. In thin-walled patients the outline of the stomach may be seen upon inflation and occasionally a diagnosis made. The vomitus may contain food at first, then become clear, later food particles appear, though no food be taken during the period of attack; or the cardiac cavity may be thoroughly irrigated, clear water returned and then suddenly food particles appear. Again, the splashing sound noticed by Jaworski may show fluid in the stomach which can not be withdrawn because it is in the pyloric cavity. We find slow progress in the diagnosis of the actual underlying condition, but the chronicity and serious phases point directly to surgical interference, which should clear up the diagnostic difficulty and give gastric relief.

Hemorrhage is not so frequent as formerly thought; at least, hemorrhage that calls for radical interference. Large areas with its continual oozing lead to anemia, and with the serious and chronic symptoms that accompany we are not greatly delayed in deciding the condition. Bleedings that are copious bring sudden pallor and anemia, weakness, fainting and great shock—quantities may be vomited and tarry stools later be present. It is often easy, but it may be difficult to diagnose. However, it is a factor that does not so often call for vigilant search or active interference.

As a complication, we would lay most stress upon malignant degeneration. Not because it calls for surgical relief oftener than does obstruction, malformation or perforation, but because *it is the fruitful soil for cancer implantation*; when cancer is once implanted the cure has been proven most difficult, partly, no doubt, because diagnosis is

slow. If we would conquer in this dreadful battle against cancer, we must enter the field of ulcer, and attempt to cure cancer in that stage when it is not cancer—but ulcer. Latency of both ulcer and cancer is to-day a great obstacle to their proper handling. Ulcer may be destructive, its first symptom sudden hemorrhage, perforation, or obstruction—or malignancy may have been long implanted, and its first pronounced symptom be manifest only when tumor or dissemination has disclosed a hopeless condition. In our histories we find about one-half of the cancer cases with a long preceding ulcer history, and about 71 per cent. of excised portions when examined microscopically show implantation on an old ulcer scar. Therefore, when definite and obstinate gastric symptoms obtain we should not be slow to advise such treatment that not only offers general relief, but greatly mitigates the grave danger of cancer.

In differential diagnosis we shall touch but three of the many conditions that call for attention: cancer, chronic appendicitis and gallstones. In our round of differential diagnosis we would not forget pancreatic stone, kidney lesions, angina pectoris, gastric crises, intestinal colics, etc., as well as many general systemic diseases like pernicious anemia and Bright's, that may carry symptoms closely related to ulcer.

Cancer: In eliciting histories from those suffering from gastric cancer, we have found them to fall into three classes: first, those in which the disease seemed to appear suddenly in the enjoyment of perfect health; second, those in whom an attack or attacks in earlier years are definitely stated, and who, for years, have been well until sudden grave symptoms (as in Class I) threaten, and, third, those who for years have had typical attacks of chronic gastric ulcer. In the first and second classes we may find tumor, an advanced pathology and symptoms of chronicity suddenly and very acutely developed. We may find those cases whose only complaint is a diffident weak feeling, and who are chiefly concerned because an epigastric tumor has been discovered. Others complain of languor, weakness, loss of appetite and emaciation, and nothing on physical examination is revealed; the test meal may be of value here. We feel sure that, however great the difficulties here met in reaching a diagnosis, they are not less than in Class 3, where ulcer has been apparent for years.

Some patients are weak, emaciated and cachectic when ulcer is the only lesion. A palpable tumor and vomiting of delayed food, poorly macerated with coffee-ground appearance may be present and ulcer still the lesion—but tumors of the stomach are usually cancer. When cancer has once fastened itself upon the stomach the course is short and steadily downward, and remissions are seldom experienced. In cancer, so-called pyrosis may increase in time and amount, but loses its acidity; regurgitation day or night is also increased in amount and likewise loses its acidity. Vomiting is often more delayed, more copious, oftener blood-mixed and gives a strange and great relief, though rarely so complete as in ulcer. Vomiting and nausea are more often excited by liquid food; gas and bloating become more chronic and distressing; appetite is lessened and finally lost or a disgust for food is felt. Emaciation comes

on rapidly, pallor, anemia and weakness hasten; loss of power is marked, desire for activity is wanting and a great languor is felt. Food, instead of giving relief, is quite apt to produce immediate pain, which may be acute, but oftener is dull, sickening, almost indescribable, or a strange distress not related to food is common and continuous. With all this there is a mental depression, as though a consciousness of approaching evil. This mental attitude is the great factor that gives to the face the expression that so often marks the malignant sufferer. No symptom or symptoms seem sufficient by which to diagnose cancer of the stomach—the facies, the general appearance, the mental attitude, the physical condition, the direct gastric symptom all form a composite picture, a glance at which may make the diagnosis.

Chronic recurrent appendicitis is the type that simulates chronic ulcer of the stomach. There are distinct prolonged attacks. Pain is not referred to McBurney's point, and often no appendiceal tenderness can be elicited. There is no fever, no tumor, no symptoms that accompany the usual attack of appendicitis except those directly referred to the stomach. There can be little doubt that many of the chronic gastric symptoms are reflex, due to pyloric spasm. The pain may be purely reflex or it may be directly due to the pyloric spasm and the accompanying stomach reaction. Pain, vomiting, gas, increased secretion and sour eructations all follow pyloric spasm, whatever its origin, and the stomach reactions, whether due to pyloric spasm or obstruction, must give the same symptoms. So we have in spasm due to appendicitis, reverse peristalsis and the usual chronic stomach accompaniments of ulcer. As in complicated chronic ulcer, food soon increases the trouble and rarely gives direct and decided relief, while sour foods quite often offend. Quite a degree of invalidism may result. The symptoms, though scarcely as persistent and severe as in chronic complicated ulcer, give quite the same picture. If the early, clear history of peptic ulcer is lacking and we can get no history of typical appendicitis, and if all local appendiceal symptoms are absent, we are exceedingly disposed to diagnose gastric ulcer.

Gallstones: The great majority of biliary attacks are easily diagnosed. The symptoms appear in decided attacks of short duration (except chronic), usually moments or hours. Intermissions of days, months or years of perfect health are the rule in uncomplicated cases. The attack comes suddenly, often without the slightest warning. As characteristic as is this suddenness of onset is the abrupt cessation of the attack, perhaps during the height of pain, followed by immediate return to quite normal health. Pain is the great overshadowing symptom. It is epigastric with radiation to the right costal border, and to the right scapular region, or the chest and abdomen may be one great area of pain. It is lancinating, boring, severe, terrific—spasm of the diaphragm (dyspnea) is present and marked. The pain appears without any regularity as to time—day or night, to-day, next year, before meals, after meals, no meals. It is wholly independent of and not caused by food, neither relieved by it, and the patient rarely places a relation between food and pain. Gas is present and by pressure intensifies pain, for belching brings a degree of relief, but the bloated, distended, almost

bursting sensation that so many experience is due chiefly to the character of the pain and its field of radiation, rather than to the presence and pressure of gas itself. Vomiting, often present, may bring relief, but not with the certainty that it does in ulcer. It comes during the height of the attack, may be somewhat prolonged, consists of a green, bitter fluid, not copious, unless soon following a meal. Jaundice is more frequent (25 per cent.) in gallstones, and hemorrhage (25 per cent.) in ulcer; constipation is common in ulcer, while in gall-bladder disease the bowels are rarely disturbed. Nutrition fails during an active ulcer period—while in gallstones nutrition rarely suffers until duct complications and pancreatitis supervene.

We may find almost insuperable barriers when we attempt to differentiate between some chronic gall-bladder conditions and gastric ulcer with chronic perforations. Especially is this difficulty increased if, in ulcer, the perforation is posterior, when the pain radiates into the back. In both we may have chronic symptoms present, pain, vomiting, burning, distress, sour eructations, poor appetite and emaciation. These symptoms are usually recognized as those of gallstones, because of pain radiation, which is the only characteristic in the whole syndrome. There is another class of ulcer cases quite impossible to place correctly: it is usually the duodenal or pyloric type. The only symptom complained of is sudden, severe, short epigastric attacks of pain, more often without radiation, occasionally to the back. Recovery from pain which is due to chronic perforation or spasm comes rapidly and is complete. The attack is typical only of gallstones. No other rational preoperative diagnosis is possible. In the first group the early history promises solution. In the latter surgery must tell, or delay develop the characteristic symptoms. Until broader methods are evolved we must too often, in both gallstones and ulcer, rest satisfied with a surgical diagnosis.

THE SURGICAL TREATMENT OF NON-PERFORATIVE GASTRIC ULCERS.

A. J. OCHSNER, M.D.
CHICAGO, ILL.

The surgical treatment of non-perforative gastric ulcer is indicated only when normal conditions can not be re-established by carefully planned and patiently and persistently executed dietetic, hygienic and medicinal treatment. This is most important because the portion of the digestive tract involved in the surgical treatment is structurally very admirable from a mechanical point of view when in a normal condition and splendidly suited for performing its physiological duties and because the mechanical perfection can never be attained with the most perfect surgical operation. It is consequently clear that every effort

must be made to restore the stomach to a normal condition with non-operative treatment if this is possible. The stomach and the duodenum must always be considered together in the discussion of this part of the question, because they go together embryologically, physiologically, pathologically, technically from the surgeon's point of view. Considered as a digestive machine, we have a storage reservoir in the cardiac end of the stomach with provisions for the secretion of the digestive fluids and a mixing apparatus for combining these liquids with the food.

In the pyloric end of the stomach we have the powerful muscles for grinding the food and forcing the larger portions back into the storage tank in the cardiac end of the stomach while the finer portions are passed on into the duodenum past the pylorus, where they will again be manipulated by a second mixing apparatus. Here the bile and pancreatic juice are added, and after this stage of mixing is past the food is ready to be turned over to the absorbing apparatus in the small intestines.

When this splendid apparatus has been hopelessly impaired by the obstruction due to an ulcer itself with an indurated base or a cicatricial stricture following the healing, or to a spasmodic closure of the pylorus caused by the irritation of an ulcer, it is plain that something must be done to restore this organ at least in a measure to its normal activity even though the mechanical conditions obtainable may not equal those present originally. It is a fact that even an impaired stomach may serve its possessor long and well if certain dietetic and hygienic precautions be constantly carried out, and there can be no doubt but what many cases that are now relieved only by surgical treatment could have avoided the necessity of this treatment had they lived as wisely after the first healing of their gastric ulcer as they are compelled to live after their surgical operation.

Non-perforative gastric ulcers require surgical treatment when they cause obstructions directly or secondary to the passage of food from the stomach to the duodenum, when there is acute or persistent hemorrhage, when there is excessive pain which can not be controlled without surgical interference and when there is a suspicion of the presence of an implantation of carcinoma. In case of acute hemorrhage it is best to keep the patient perfectly quiet and so use exclusive rectal alimentation and later to build up the general condition of the patient, but to operate before there is a recurrence of the hemorrhage, not even water should be given by mouth. The hemorrhage can most easily be started by placing some substance in the stomach which will disturb the clot closing the bleeding vessel. It is only rarely necessary to operate during a hemorrhage from non-perforating ulcer. In preparing patients for operation it seems wise to cleanse the teeth and tongue frequently and thoroughly for several days before the operation and to give only sterile food.

The proposed operation must produce the best possible anatomic physiologic machine. It must prevent the further accumulation of irritating gastric fluid and must provide rest for the pyloric sphincter. There are but three operations which seem to be valuable at the present time: (1) pyloroplasty, (2) excision of the ulcer, (3) gastroenterostomy.

1. *Pyloroplasty*.—Practically my results have not been permanently satisfactory with pyloroplasty, although Finney and a few others reported good results in selected cases. My personal impression has been that the tissues in the obstructed pylorus do not make a satisfactory field for a plastic operation.

2. *Excision*.—Except when carcinoma has been suspected or when an ulcer has given rise to an hour-glass stomach, I have not deemed it necessary to excise gastric ulcer, because this increases the danger without improving the results. Rodman's plan of excising the ulcer-bearing area is brilliant theoretically, but has not received general adoption.

3. *Gastroenterostomy*.—Ulcers heal after gastroenterostomy has been properly performed. Whether the healing is due to drainage of the rest of the diseased portion, to the reduction in secretion and accumulation of irritating gastric juice, or, as Mr. Cameron thinks, to the alkalinization of the stomach contents due to the introduction of bile and pancreatic fluids through the anastomosis opening has not been definitely proven, but the fact remains that the ulcer actually heals if the operation has been performed properly.

As regards the technic of the operation it seems best to insist that every surgeon should learn the details at the operating table by observing the successful surgeon as he carries out each important detail. One can not learn this from books or from description. The following points are important:

1. The abdominal incision should be ample.
2. The gastroenterostomy opening should be large.
3. It should be remote from the ulcer.
4. It should, however, be at the lowest point of the stomach.
5. It should be on the posterior surface of the stomach when possible.
6. There should be no tension.
7. There should be no distortion.
8. There should be sufficient opening in the transverse mesocolon.
9. The edge of this opening should be sutured carefully to the stomach or the jejunum after the anastomosis has been completed.
10. The simplest technic possible should be employed.
11. All unnecessary trauma should be avoided.
12. All unnecessary exposure of the intestines should be avoided.
13. The smallest possible amount of anesthetic should be employed.
14. The operation should never be performed unless either an ulcer or pyloric obstruction can be demonstrated.

After-Treatment.—The patient should be placed in a sitting position as soon as possible after operation. In case of gastric dilatation the stomach tube should be introduced. Gastric lavage may be used, but not more than one-half pint of fluid should be used at a time. Proctoclysis by Murphy's drop-method and rectal feeding should be employed.

SURGICAL TREATMENT OF PERFORATING GASTRIC AND DUODENAL ULCER, WITH REPORT OF A CASE OF PERFORATING GASTRIC ULCER—RECOVERY.*

J. E. ALLABEN, M.D.

Surgeon to St. Anthony Hospital,

ROCKFORD, ILL.

The repair of perforation of the stomach and duodenum resulting from ulcer is indeed a strictly modern procedure. Suture in a gastric perforation was first done by Mikulicz in 1880. The first successful case was reported by Kriege in 1892. In 1888 Sidney Jones did the first operation for perforation of the duodenum, a diagnosis of peritonitis being made—the perforation being discovered at the autopsy. In 1894 Dean had a successful case, but the patient died two months later from intestinal obstruction. Landerer and Glucksmann's case (1896) lived six months and died from a second perforation. In the same year Dunn operated a case that made a permanent recovery. In America Finney and Weir were the first successful operators.

M. Martens of Berlin says¹: "The early fatal ending of perforating gastric ulcer is the reason why in former years cases seldom came under observation or treatment." From 1895 to 1897 he did not have a single case; 1898 to 1903, 2 cases; since 1903, 11 cases of perforating gastric ulcer and two perforated duodenal ulcers; eight of the gastric ulcers were in 1907. The thousands of graves made from perforating gastric and duodenal ulcers, like those from appendicitis and perforation of the intestines in typhoid, mark the victims of an undeveloped age in this particular branch of the science and art of surgery.

Perforating ulcer of the stomach and duodenum may be classified as acute, subacute and chronic. In acute perforation the opening in the stomach communicates directly with the free peritoneal cavity, the stomach contents escaping unimpeded into the peritoneum. Acute perforations are usually on the anterior wall of the stomach. Subacute perforation is preceded by more or less local peritonitis in the locality of the ulcer, so that a protective wall is formed by adhesions to surrounding tissues or by plastic exudates preventing the perforation occurring into the free peritoneal cavity. In subacute perforation the escaping visceral contents are more or less circumscribed. In subacute cases perigastritis and a local peritonitis with their accompanying symptoms precede the symptoms of actual perforation. In chronic perforation the base of the ulcer becomes adherent to some adjacent organ as the pancreas, liver or adhesions formed by plastic exudate, so that no premonitory symptoms precede the actual perforation of the visceral wall and the symptoms induced after perforation are those of sepsis from absorption from a subhepatic, retrocolic, perigastric, or subphrenic abscess. A large majority of subphrenic abscesses are induced by chronic per-

* Read at the fifty-ninth annual session of the Illinois State Medical Society, May 18, 19 and 20, 1909.

1. Martens, M.: Zur Technik der Operation des perforierten Magengeschwurs, Deutsch. med. Wchnschr., 1907, xxxiii, 1857.

forating gastric or duodenal ulcers. Chronic perforations are usually on the posterior wall of the viscus. A subphrenic abscess may penetrate the thoracic cavity, pericardium, gall bladder, intestine, or anterior abdominal wall.

Frequency of Perforation.—According to various authors, the frequency of perforation in gastric ulcer is estimated from 28.5 per cent. (Fenwick) to 6.6 per cent. (Welch²). Perforation is much more frequent in duodenal than in gastric ulcer. Deaver says³ that about 15 per cent. of patients with gastric ulcer die from perforation, whereas in duodenal ulcer one-fourth will develop this complication. In 272 operations for duodenal ulcer Mayo (cited by Deaver) reports 66 for perforation, making over 24 per cent.

Age and Sex.—Perforation may rarely occur in childhood or in extreme old age, but is most common in middle age. Gastric perforation is quite common in women under 25. According to W. J. Mayo, chronic ulcer occurs in the stomach with equal frequency in the two sexes, but in the duodenum more than three-fourths are in males.⁴

Site of Perforation.—Although ulcer is most frequently found on the posterior wall, perforation occurs most frequently on the anterior wall. This is due to the fact that the posterior stomach wall is in contact with adjacent structures or viscera, as the spinal column, pancreas, Spigelian lobe of the liver and duodenum, so that adhesions take place between these tissues and the base of the ulcer, protecting the general peritoneal cavity against perforation. In acute duodenal perforation the location is most frequent in the first portion of the intestine and on the anterior surface. In 20 per cent. of reported cases the perforations were multiple and in a large per cent. of perforating ulcers there were other ulcers in the stomach, though not perforating.

Size of Perforation.—The size of the perforation may vary from that of a pin point to one several inches in diameter.

Symptoms.—The first and most characteristic symptom of acute perforation is pain of an intense burning, agonizing character. If a patient is seen in this condition the picture is one that can not be forgotten. There is usually a sudden onsets and the face becomes pinched and pallid and expressive of the most intense suffering. In the case which I report later the patient was awakened suddenly in the night and threw himself from the bed and was found writhing in agony upon the floor. The picture is that of shock and collapse. The extremities become cold and the face covered with cold perspiration. The respiration is costal and rapid, the pulse feeble and markedly increased in rate. Vomiting usually occurs, but is not persistent, as in intestinal obstruction. The pain is located in the upper abdomen (epigastric, right or left hypochondriac region). Rigidity of the upper abdominal muscles and tenderness upon pressure are important symptoms. If the extravasated material is extremely virulent and rapidly absorbed, the endotoxins

2. Robson, Mayo: Keene's Surgery, III, 860.

3. Deaver, John B., and Ashhurst, Astley Paston Cooper: Surgery of the Upper Abdomen, I, 203.

4. Mayo, W. J.: Chronic Ulcer of the Stomach and Duodenum, St. Paul Med. Jour., June, 1908.

set free by destruction of bacteria in the blood is so abundant that the patient is overwhelmed and dies in a few hours without developing rigidity of the abdominal muscles. If, however, the dose of endotoxins is not fatal, there is a peritoneal reaction within one or two hours and muscular rigidity and tenderness become pronounced.

Thirst is usually marked, but should not be gratified, as the fluid escapes through the perforation, spreading infection in the peritoneal cavity. If there is a rapid escape of gas in the abdominal cavity, liver dullness may disappear. An examination for the absence of liver dullness, if made in the axillary line, is less misleading, according to Manges, as thereby the distended intestinal element is eliminated. Tympany is a late symptom indicative of intestinal paralysis due to spreading peritonitis or to profound toxemia of the central nervous system. Immediately after the perforation some authorities claim that a fall of temperature occurs; within an hour or two, however, there is a rise of temperature and an increase of the pulse rate. A marked peritonitis, though, may be present without a corresponding rise of temperature.

Chilliness and a high temperature is indicative rather of cellular or lymphatic infection. Such a temperature is more common in chronic perforation with general sepsis. In this, as in all cases of peritoneal sepsis, the pulse rate is a more reliable sign than the temperature.

In subacute perforation there may be pain, muscular rigidity and the other symptoms characteristic of acute perforation, but these symptoms are in every way less pronounced in character.

The symptoms of chronic perforations are those peculiar to perigastric and subphrenic abscesses. There is usually a history of long continual stomach trouble due to ulcer. There may be sharp pain in the upper abdomen, with tenderness and rigidity, but usually the perforation is so gradual that the peritoneal cavity becomes protected by extensive adhesions and it is impossible to estimate the time when perforation actually took place. Sooner or later an abscess forms, sometimes manifested by a bulging tumor in the epigastric or hypochondriac regions. Accompanying this there are symptoms of general sepsis, chills, elevation of temperature, increase of pulse rate and rapid loss of flesh. An abscess may penetrate the chest cavity, simulating empyema, causing sudden death or the lung and the contents of the abscess be expectorated. According to Barnard, cited by Deaver, thoracic signs and symptoms were present in 56 of the 76 cases of subphrenic abscesses studied by that author. There may be dullness on percussion with upward displacement of the lung and increased vocal resonance. The apex of the heart may be displaced upward.

Mayo Robson speaks of the coin test used in a case as follows: "On placing the stethoscope over the eighth intercostal space, which region was dull on percussion, and on placing a coin over the stomach and percussing it with another coin, the sound was distinctly conveyed through the whole of the abscess cavity and through the stethoscope to

the ear. The diagnosis was confirmed by operation.⁵ Gas may be present in the upper portion of the abscess, giving a tympanitic sound between the duller sounds elicited by percussing the lung above and the lower portion of the abscess below. An abscess may ulcerate into the stomach and be vomited or into the retroperitoneal tissue and burrow downward to the groin or iliac region. Mayo Robson cites two cases of perigastric abscess, one of which was opened in the left groin and the other in the left iliac region. The x-ray should be employed for diagnosing abscess where it is possible to do so. The aspirator needle should never be used except when the surgeon is ready to immediately proceed with the operation of draining the abscess.

Differential Diagnosis.—Duodenal perforation is most difficult to differentiate from gastric perforation. The question of sex is of some importance, as duodenal perforation occurs much more frequently in males. The previous history of the case may be of some aid, yet it is not always possible to make a correct diagnosis between these two conditions, nor is it of any special importance to do so, as both require immediate operation and the surgical treatment is practically the same. Other diseases for which perforation may be mistaken are acute appendicitis, ruptured tubal pregnancy, acute intestinal obstruction, acute hemorrhagic pancreatitis, phlegmonous cholecystitis or rupture of the gall bladder, and mesenteric thrombosis. These conditions also require immediate operation, so that no harm is done if the diagnosis must be made by exploratory laparotomy.

It is different, however, with another class of maladies for whose relief surgery is unjustifiable—namely, pneumonia with sudden pleuritic pain, irritant poisoning, ptomaine poisoning, acute dilatation of the stomach or gastro-intestinal crisis from some forms of skin disease. While the greater number of subphrenic abscesses are caused by chronic perforating gastric or duodenal ulcers, yet not a few have their origin from appendicitis. Elsberg was able to collect 73 such cases, to which number Eisendrath⁶ added 33 cases, including 5 of his own. In all of Eisendrath's cases there was a previous history of appendicitis treated or operated from one day to one year before symptoms of abscess appeared. Mayo Robson says that in nearly all cases a correct diagnosis may be made from the history of the cases and that in 90 per cent. a previous history of gastric irritation can be obtained.

TREATMENT.

Surgery offers the only remedy in the handling of this distressing complication. The death rate with non-interference, according to Robson, is 95 per cent., according to Deaver 99 per cent. The treatment naturally falls into two divisions:

1. Acute cases, the treatment of which is abdominal section at the very earliest moment after perforation, repair of the perforated viscus, surgical procedure to overcome or anticipate obstruction or for healing ulcers (gastrojejunostomy), and the application of those principles to

5 Robson, Mayo: Keene's Surgery, iii, 868.

6. Eisendrath, Daniel N.: Jour. Am. Med. Assn., March 7, 1905.

conditions of the peritoneum best calculated to prevent or limit septic peritonitis.

2. Subacute and chronic perforations, in the management of which we have to deal, not with the perforation itself, but with conditions resulting from perforation—viz., the various forms of abscess and their ramifications, as subhepatic, retrocolic, perigastric and subphrenic, and the general sepsis resulting therefrom. The principle involved in the treatment is the location of the abscess and providing a safe conduit through which its contents may reach the surface of the body.

In the acute perforation the upper abdomen should be entered through an incision in the median line or through the upper portion of the right rectus muscle. The latter incision renders perforations near the pylorus and duodenum most accessible. When the abdomen is opened gas usually escapes and more or less of the stomach or duodenal contents will be encountered. If the stomach is full at the time of perforation or liquids are given the abdominal cavity may be found flooded. In a very interesting and successful case of gastric perforation operated upon by Dr. Arthur C. Roper of London⁷ a pint of curded milk was found about the stomach and the pelvis filled with milky fluid. In the writer's case perforation occurred when the stomach was empty and only a small amount of gastric juice and mucus was found about the pylorus.

The intestines should be protected by gauze sponges during the time of suturing. Usually it is not difficult to locate the perforation, for in acute cases it is found on the anterior surface—in stomach cases most frequently in the pyloric region or upon the lesser curvature. The perforation should be closed with linen, a purse string, interrupted Lembert, or Lembert-mattress suture being used. Frequently the base of the ulcer is hardened and friable from induration and will permit but little tension upon the suture. In such cases the perforation may be more securely sealed by grafting over the sutures a piece of the greater or gastro-hepatic omentum. After an ulcer perforates there is a tendency to heal spontaneously, so if leakage can be controlled for a short time healing readily occurs. In case the location of the perforation is inaccessible or its edges so friable that suture is impossible, good results have been obtained by tampon or by draining the stomach through a temporary gastrostomy.

Lennander thus drained the stomach of a patient with perforation and stenosis upon whom he operated 60 hours after perforation. About three and one-half months later gastrojejunostomy was done for pyloric obstruction. Lennander⁸ recommends temporary gastrostomy in cases where stenosis is liable to follow operation for perforation and where the patient's condition will not allow the more prolonged operation of gastrojejunostomy. Gastrojejunostomy is recommended as a secondary operation when symptoms of stenosis appear. He says temporary gastrostomy is indicated: 1. If the gastric wound can not be absolutely

7. Roper, Arthur C.: Brit. Med. Jour., Sept. 19, 1908.

8. Lennander, K. G.: Temporary Gastrostomie bei Magen-oder Duodenal-gesch, besonders bei perforierten Geschowinen ut gleichzei tiger Rentention. Deutsch. Ztschr. f. Chir, 1908, xcii, 297.

securely closed on account of the location or quality of the ulcer. 2. If there are symptoms of paralysis of the small intestines.⁸ Paring the edges of the ulcer is unnecessary and excising the ulcer before suturing increases the mortality and renders pyloric stenosis more probable. Von Kautz of Wien excised the ulcer in three cases, the patients all dying. The operation was not repeated.

Where the perforating ulcer is near the pylorus stenosis is liable to occur and the question of doing a gastrojejunostomy at the same time the perforation is repaired must be considered. The advisability of such a procedure will depend much upon the time elapsing between the perforation and the operation for its repair. If the operation can be done early—two or three hours after perforation—and the patient's condition is good, a gastrojejunostomy should be done. This is recommended by Deaver, Mayo Robson, Lennander, Körte, Martens and others. The Mayos, who have operated upon 30 cases, perforating into the free abdominal cavity, have done gastrojejunostomy at the same sitting five times. As a secondary operation two of their cases have demanded this procedure.⁹

With my case laparotomy and repair of the perforation were done three hours after the accident. The perforation was so near the pylorus and its base so indurated I was certain that pyloric stenosis would follow. The patient was in good condition, yet the fear of prolonging the operation and spreading infection deterred me from doing a gastrojejunostomy. Three weeks later I was obliged to do this operation for pyloric obstruction, the patient making a good recovery. I now believe under similar conditions the two operations in one sitting is the operation of choice. If there is a question of doubt, however, the patient should be given the benefit and gastrojejunostomy done as a secondary operation. The posterior no-loop operation as now performed is as satisfactory as any operation in surgery.

The proper toilet of the peritoneum where septic material is present is still a question of some discussion among surgeons. Where undigested food has entered the peritoneal cavity through a perforation it should be removed, but the belief is growing stronger that irrigation and mopping away of pus and exudates in septic peritonitis is not only a waste of time but a dangerous procedure calculated to spread septic material toward the diaphragm and open new fields for infection. The experiments of Buxton¹⁰ on the processes of absorption from the peritoneal cavity demonstrate that practically there is no absorption by any other part of the peritoneum besides the diaphragm and the omentum. Many bacteria are entangled by exudates on the surface of the omentum and destroyed by phagocytes, while some are absorbed by the omental lymphatics. Within five minutes after bacteria are introduced into the peritoneal cavity they will be found in great numbers in the blood and in lesser numbers in the liver and spleen and in the anterior mediastinal lymph nodes which they reach from the diaphragm. It is evident, therefore, that anything which spreads bacteria toward the dia-

9. Personal communication.

10. Buxton, B. H.: Jour. Med. Research, 1906, xv, 3-18, and 1907, xvi, 17-24.

phragm, as mopping and irrigation, increases the danger for the patient. From this we get our rational treatment for reducing manipulations in the peritoneal cavity to a minimum and for maintaining the patient in the Fowler position.

AFTER-TREATMENT.

The two cardinal points in the after-treatment are: 1. The diverting of septic material from the location of the diaphragm—most satisfactorily accomplished by supporting the patient in the Fowler position. 2. The dilution and elimination of toxins by proctoclysis as advocated by Murphy. The introduction of the semi-upright position in the treatment of septic conditions in the peritoneal cavity was a revolution in method as well as a revolution in results. Proctoclysis is a treatment of nearly equal importance, but in ordinary hands we believe the method of applying it is carried out with very indifferent results. It seems very difficult for the average nurse or interne to grasp the principles involved in its use, and if the principles are comprehended it is often very difficult to obtain a proper watchfulness and faithfulness in its application. The solution is often found to be too cold. If the fountain syringe or can is placed too high the rectum rebels and the solution is expelled into the bed: if too low, the patient does not receive it at all. The principle of the treatment is absolutely correct, but its application, I believe, is not yet perfected.

Drs. Murphy, Newman and Wechsler have recently contributed articles upon the application of the treatment.¹¹ The apparatus of Newman is ingeniously arranged to maintain a uniform temperature, but, as Murphy says, it will not allow the fluid and gas to be forced back into the receptacle when the patient strains. If this can not occur the fluid will be forced out of the rectum into the bed. Where the fountain can has been properly adjusted, and the flow regulated wholly by gravity, I have seen fluid with small particles of fecal matter forced back into the receptacle and again return to the rectum. Could this not have been accomplished by the patient it would have been expelled into the bed. The simplest method we have for using proctoclysis is the fountain can with a bottle of hot water placed into the solution in the can to maintain a proper degree of heat.

In Lennander's case, already cited, besides doing a temporary gastrotomy, a drainage tube was also placed through an incision into the cecum, remaining there for five weeks. This operation (typhlostomy), Lennander says, helps to prevent paresis of the intestines and provides an efficient means for supplying nutrition. This procedure of Lennander's, together with the previous suggestion of Weir that the appendix (appendicostomy) could be used in like manner for irrigating the colon in cases of amebic dysentery, and mucous colitis, suggested to my mind the feasibility of employing the same method for enteroclysis. I have never tested it, but it seems to me in selected cases it would

11. Murphy, J. B.: Proctoclysis in the Treatment of Peritonitis. Newman, Samuel E.: Continuous Enteroclysis. Wechsler, B. B.: An Apparatus to Keep Enteroclysis Solution Hot, Jour. Am. Med. Assn., April 17, 1909.

be ideal. In septic peritonitis, where the primary focus of infection is in the lower abdomen, the application of this method is comparatively simple. A catheter or small drainage tube might be secured by a purse-string suture in the appendix or cecum, as in gall bladder work, and anchored into an incision in the right iliac region.

In many cases of general suppurative peritonitis with the primary focus of infection in the upper abdomen the lower abdomen is invaded, requiring low incision. Here again the method is applicable. If the appendix or cecum is stitched to the peritoneum or apponeurosis the danger of permanent fistula would be small, and, as this portion of the intestine has but a very limited motion, the danger of leakage or complication from being fixed need hardly be considered. By this method normal salt solution could be administered very rapidly and at a greater degree of heat immediately after operation, a matter of great importance in desperate cases.

Again, liquid nourishment could be administered at will, thus avoiding the annoying and doubtful method of rectal feeding.

TREATMENT OF SUBPHRENIC AND PERIGASTRIC ABSCESS.

Barnard, according to Deaver, divides the area beneath the diaphragm into four peritoneal and two cellular spaces. The falciform ligament divides the peritoneal spaces into a right and left space. These are again divided into anterior and posterior spaces by the lateral ligaments. The two cellular or extra-peritoneal spaces are (1) "that included between the layers of the coronary ligament; (2) that extending from the cellular tissue around the upper pole of the left kidney up to beneath the left dome of the diaphragm." The treatment of these abscesses is to furnish thorough drainage by the most accessible route. The operations are classed as anterior, posterior and lateral. The posterior include the transpleural and subpleural operations through the diaphragm.

For anterior perigastric abscess the incision should be median or in left hypochondriac region. Counter drainage through left loin should be provided if the abscess extends well downward. Posterior perigastric abscess (abscess of the lesser peritoneal cavity) may be drained through the front or through an incision in the left loin below the last rib. It is better to enter the peritoneal cavity and locate the abscess than to attempt to make the incision directly into the abscess cavity. In cases where the abscess is low posteriorly the exploratory incision in front may be closed and the abscess drained through the left iliocostal space, or it may be drained both in front and behind. An abscess occupying the subhepatic space and right renal pouch should be drained anteriorly and by counter drainage in the right loin.

If the abscess does not extend beyond the costal border it may be approached by resecting a portion of the tenth rib between the anterior and posterior axillary lines, the pleural reflection pushed upward and the abscess opened by incising the diaphragm without opening the thoracic cavity, as recommended by Eisendrath. If the thoracic cavity must be entered to drain a subphrenic abscess a portion of one or two

ribs should be resected and, if possible, the costal and diaphragmatic pleura should be stitched together before the abscess is opened, thus avoiding infection of the thoracic cavity. If diffuse peritonitis complicates subphrenic abscess the thoracic route should not be employed until a laparotomy is done and the intra-peritoneal conditions dealt with.

In all cases where the abscesses are approached by the abdominal route the intestines and surrounding tissues should be protected by careful packing with gauze sponges and the Fowler position and proctoclysis should be employed in the after treatment.

PROGNOSIS.

Subphrenic abscess is always a very serious complication. The mortality rate reported by most operators varies from about 15 per cent. to 52 per cent. In a personal communication Dr. W. J. Mayo states that they had operated on about 20 cases with good results. The exact results could not be given on the whole number of cases. The last they had looked up were twelve cases with no deaths. The death rate without operation is at least 82 per cent. Barnard claims the best results by the posterior method of drainage. A mortality rate of 13.3 per cent. by the posterior method against 22.2 per cent. by the anterior method. Mayo says they have usually found the abscess most accessible from the front.

In acute perforations the mortality rate is from 30 per cent. to 66 per cent. Gross and Gross, who have collected from various sources reports of 369 operations, give a mortality of 50.67. per cent.; Mayo 30 cases, with 7 deaths, 29.9 per cent. Moynihan reports 24 perforating cases (16 of stomach and 8 of duodenum) operated upon, with a mortality of 37.5 per cent. When these conditions are more readily diagnosed by the physician and the patients brought to the surgeon in time for an early operation statistics will undoubtedly be much improved. "The best example of the excellent results of early operation with which I am acquainted," says Mayo Robson, "were reported by Sinclair Kirk—11 cases with 11 recoveries. Eight were done within five hours after perforation, one seven, one ten, and one twenty hours after operation."¹²

REPORT OF CASE.

H. W. G., male, aged 52 years. In November, 1907, began to have distress in stomach with slight pain after taking food. In December had dizzy spells and very sour eructations. December 26, had a severe attack of dizziness, vomiting and fainting. Was confined to bed two days. Distress in stomach, sour eructations and occasional vomiting continued. By July 1, 1908, food could be retained only one hour. August 24, I saw the patient and ordered a test meal and stomach analysis; this showed hyperacidity, a few blood corpuscles and the usual condition characteristic of gastric ulcer. Gastric ulcer diagnosed and operation advised. At midnight August 26, the patient vomited a half pint of fluid having the appearance of coffee grounds in which were some streaks of blood. At 3 o'clock the same night he was awakened and cried out with an intense pain in the stomach and a few moments later was found upon the floor by members of the household suffering agonizing pain.

A diagnosis of gastric perforation was made, the patient removed to the hospital and a laparotomy done three hours from time perforation occurred. A per-

12. Sinclair, Kirk: Med. Press, March 29, 1905.

foration was found in the anterior stomach wall about two inches from the pylorus through which I could pass my index finger. The perforation was closed (first) by interrupted Lembert sutures; (second) purse-string suture; (third) a graft from the gastro-hepatic omentum.

The base of the ulcer was greatly indurated and very friable, so that but little tension could be made upon the sutures. The case progressed without symptoms for three weeks, when vomiting began, and for two days everything put into the stomach was rejected. It was evident that the ulcer in healing had produced an obstruction of the pylorus. A posterior no-loop gastrojejunostomy was done. The patient made a good recovery. I saw this patient a few days ago, and now, after nine months, he is well, in good flesh, and is suffering in no way from stomach trouble.

CONCLUSIONS.

1. Ulcers of the stomach and duodenum are much more common than is usually supposed.
2. The life of an individual with ulcer is perpetually jeopardized by the possibility of perforation.
3. The treatment of perforating gastric or duodenal ulcer is limited to surgical procedure.
4. The prevention of perforation means the early diagnosis of ulcer in the preperforative stage and its treatment by excision or gastrojejunostomy.

I wish to acknowledge my indebtedness to contributions by Drs. W. J. Mayo and Mayo Robson and the comprehensive work on "Surgical Diseases of the Upper Abdomen," by Drs. Deaver and Ashhurst.

SYMPOSIUM ON GASTRIC AND DUODENAL ULCER.

DISCUSSION ON THE PAPERS OF DRS. GRAHAM, SIPPY, OCHSNER AND ALLABEN.

Dr. John B. Deaver, of Philadelphia, was asked to open the discussion. He said: While my pleasure has been great in coming to this meeting, it has been made much greater by having heard these magnificent and logical papers on the surgery of the stomach this morning, and I am sure that my pleasure will be still greater when I hear the discussions of Dr. Billings and Dr. Bevan.

There is no class of affections that I approach with a greater degree of feeling of responsibility than stomach cases. I have felt for some time that too much has been done upon the stomach, and I have up to the present no reason to think otherwise. I include myself among the number who have done too much. The more surgery of the stomach I do, the more I realize and appreciate the responsibility that we surgeons must have the courage to close the abdomen if we do not find a positive lesion. In the past I have not done so. In the future I hope to do better. (Applause.) The avoidance of operation in acute bleeding from the stomach, as mentioned by our medical friends this morning, is very important. Few patients die of acute hemorrhage of the stomach treated medicinally; many die that are treated surgically. That has been my experience. We must not confound hemorrhage from varicose veins of the esophagus and cirrhosis of the liver with gastric hemorrhage. I recall a patient upon whom a gastroenterostomy for such a condition was done by another surgeon, as a matter of course with no benefit. Within a year thereafter another hemorrhage occurred, and it was at this time the patient came under my notice. One week following this a patient was sent to me with a similar condition, by a consultant; I opened his belly, but closed it without doing anything. These patients that bring up a basinful of blood at one vomiting are not subjects of gastric ulcer as a rule.

There are only one or two additional points I wish to speak of. I was particularly interested in what Dr. Ochsner said about making large incisions, not

too large, but large enough. That is sound teaching. To try to pull the stomach, the transverse colon with it, through a small opening for the purpose of the esthetic effect is a great mistake. You will do a great deal of damage, and, as the Bible says, you will leave the last state worse than the first by the dissemination of the sepsis, in causing phlebitis, and exposing the patient to the dangers of pulmonary embolism. Surgery can not be done with ease through a small incision. I was struck with Dr. Ochsner's remarks with regard to the mechanics of the stomach, and the point he brought out of attaching the margins of the opening in the meso-colon to the stomach. In attaching the margins to the small intestines, we are more liable to have circular contraction than if attached to the stomach. A large gastroenterostomy opening is essential.

I was also struck by what Dr. Ochsner said in regard to acute gastric dilatation. I have been fortunate never to have seen a case of gastric dilatation. The reason I have not seen it I think is because I do not wait for the patient to vomit or hiccough, but as soon as there is a little distention I wash out the stomach.

The question of medical treatment is more important after gastric surgery than before it; I mean, of course, the class of cases that require gastric surgery. All these cases should be treated systematically and for a considerable length of time. It is my practice, after doing gastroenterostomy for obstruction of the pylorus, to hand the patient over to a medical man, and I am sure that this patient twelve months hence is better off than had he remained in my hands.

Dr. Frank Billings, of Chicago: I think it must be a pleasure to every medical man to have been here and to have heard this discussion by the surgeons. It is not very many years ago when surgeons were not as liberal in their expressions with regard to the treatment of chronic gastric and duodenal ulcers as they are to-day. I myself have expressed pretty strong convictions about a certain class of cases to be treated surgically. I think we owe a great deal to the man who has read the paper on the medical treatment, that is, Dr. Sippy. He deserves great credit for working out a systematic scheme which is just as technical as is the surgical treatment of ulcer. It does not consist of rest treatment, because we knew that before, but in the use of the stomach tube to drain the superabundant gastric juice which occurs in most cases of gastric ulcer. In following these cases out carefully and thoroughly, he has had his contemporaries with him in that respect, and coming out of it there is a more successful and hopeful view of these cases to be taken. If we medical men had in past years, and if all of us now would give the medical treatment with the same accuracy, technical skill, and continue our observations of cases long enough, there would not have been this controversy in the first place, and it will grow less and less in the future. That is absolutely true, for in the past the majority of us have been as remiss as it is possible for men to be in the medical treatment of gastric ulcer. There is no question about it.

Here is another point which I have been holding out for a good deal, and many medical men are taking the proper view of it: The surgeon has his operating rooms prepared in the proper way for the surgical treatment of his cases in a hospital or hospitals. He has a corps of assistants, a corps of nurses, and will not permit anyone to help unless he or she is skilled in certain work. The surgeon sees that he has his sterilizing apparatus properly fixed. It costs a great deal to do all that. We medical men in the past in our treatment of medical cases have not had the facilities and equipment we should have in our department of medicine in order to cope with these cases. These things are just as important to the patient as the operating room is to the surgeon. We should see to it in the future that such arrangements are made as are necessary, even though it may be attended with considerable expense, by which we can have a kitchen or dietary properly prepared. When doctors point out this need in our hospitals, expensive as it may be, with a dietician at its head, with properly skilled cooks in charge of the kitchen, we will have greater success than we have had, not only in the treatment of cases of gastric ulcer, but in many other conditions, and I am going to keep on until I get such a system installed in the hospital where I work.

I was very much gratified to hear Dr. Graham's paper on the symptomatology. Anyone who has studied many cases of chronic ulcer of the stomach realizes that he has written a classical paper on that subject. I have no word of criticism to offer, and I wish I could have written as good a paper as he has done on that subject. Anyone who will examine many of these patients will find that the history of the patient is one of the most important things which we must obtain in arriving at a diagnosis, and unless it is a good history it will be impossible to arrive at a proper diagnosis, and differentiate the trouble from the other important diseases which occur in the right side of the abdomen.

With reference to the treatment, I agree with what Dr. Sippy has said upon that phase of the subject and of the differentiation between the real surgical case and the medical one. I am also gratified to hear what Dr. Ochsner and what Dr. Deaver have said upon it. We can not differ from them at all. The real crux of the situation in treatment is the question of motility, after all. The surgeon formerly told us that he made a gastroenterostomy for the purpose of drainage and to lessen the secretion in the stomach, and also to afford rest to the ulcer by permitting food to go through the new opening. Well, years of experience have shown that he did not succeed in all he attempted to do. Just so long as the pylorus is unobstructed by adhesions or inflammatory swelling, or by cicatricial contraction, etc., a gastroenterostomy does not afford an opening through which the food will go. It does not make any difference whether it is a long or short loop, the food will continue to go through that loop. That has been proved, and consequently a gastroenterostomy does not furnish the stomach with a motor power which is good, and often it is absolutely bad. We medical men see more of these cases, who have had gastroenterostomy performed on them, than the surgeons do return with symptoms. I have seen dozens of them, and Dr. Sippy and other medical men have seen many such cases. I wish Dr. Graham, when he closes the discussion, would tell us how many patients have returned to the Mayos for continued disturbances of the stomach where gastroenterostomy had been performed by them. I have been told by both the Mayo brothers that many of these patients have returned, and they have restored the gastro-intestinal canal to its former condition by undoing the loop for the conditions which continued, that is, poor motility of the stomach; so that surgeons and medical men are coming together upon this question of the mechanics of the stomach, and the last word has not been said yet. I have repeated that phrase many times. I said it in Boston two years ago when there was a symposium on this subject in the Medical Section of the American Medical Association, and I said it in Philadelphia before the College of Physicians and Surgeons, as well as in Chicago and many other places. We have not learned all there is to learn about this subject. Two years from now there may be more cases for the surgeon. A new method may be evolved in the mechanics of the stomach which will give this organ better motility than it now has. We have not followed our cases long enough to determine absolutely what has been accomplished by medical treatment. If they are kept under observation long enough and examined now and then, and are found to remain symptom-free, it is very likely the medical treatment of gastric ulcer will be found more successful than it has been considered in the past. However, until we have enough statistics on the subject, we can not be sure; but the consensus of opinion of those men who have done the most work, both surgically and medically, is along the lines that have been discussed this morning. From our present study of the subject, as indicated in such papers as those presented by Dr. Sippy and Dr. Ochsner, many of these cases are medical and should be treated intelligently and long enough in order to judge of the ultimate results. That is an important point in our medical treatment, as Dr. Sippy has pointed out, namely, put these patients to bed, keep them under control, give the stomach complete rest as nearly as possible, give the kind of food which will lessen secretion, which will give the stomach as little mechanical work to do as possible, keep these patients under observation long enough to know that the ulcer has healed by the symptomless condition of the patient and by the absence of occult blood in the stool.

Here is another point which always has its relation to certain individuals, namely, what are you going to do with the poor laboring man or the woman who must earn her living and who suffers in this way? We can not put such a patient as that to bed and keep him or her under control for the length of time necessary. They have a certain earning capacity which ought to be considered. Does that in any way alter or modify our advice to such patients? Formerly, we would have said yes, it does. Such a patient should be put on the feet as quickly as possible by having a gastroenterostomy done, and therefore restored to a useful life. We gave this advice before we knew what the results of gastroenterostomies would be. Now, we know that a gastroenterostomy may not restore the patient to a useful life. We know now that a careful rest treatment may be carried out in two or three weeks with great benefit, the patients being confined no longer than for an appendectomy or drainage of the gall bladder, certainly no longer than for a sickness with pneumonia, and less than for typhoid fever, if we can control them afterwards and keep them on a proper diet with simple medication. I mention this last subject because it has been brought to my attention by several physicians and patients themselves who were unable to spend the time for prolonged treatment. These patients can be restored to useful lives by adhering to a proper diet for ulcer, to lessen the mechanical irritation of the stomach, to lessen the secretion of gastric juice, etc. I congratulate myself and all of us on the fact that this subject has come to its present status. It is beautiful.

DR. ARTHUR DEAN BEVAN, of Chicago: Dr. Billings congratulated medical men on being present and hearing what the surgeons had to say to-day on this subject. I want to return the compliment and say that I think the surgeons are to be congratulated on being here to-day and having listened to what the medical men have to say, because we are getting together on a very common broad ground in the handling of these stomach cases. I think it is one of the best examples of borderline work we have, where it is absolutely essential, in order to work out the best results, to have the diagnosis and medical treatment go hand in hand with the surgical handling of these cases. I feel I am fortunate in being so situated as to be associated with three or four medical men where we handle these cases as a routine by combining or double-teaming, because very often we give a clinic in which a medical man first gives the diagnosis and the medical side of the case, and if it is an appropriate case the patient is at once operated on by the surgeon before the class. I am sure that this combination, this getting together, is the only way in which this subject can be worked out satisfactorily.

I have gone through the same experience that most surgeons have in the last five or eight years of operating on a certain number of cases which were medical and not surgical, and finding no improvement, or in leaving the patient in a worse shape than before. On the other hand, I must say that in properly selected cases there is hardly any group of surgical cases which are quite as satisfactory as the stomach cases, those that come to us with obstruction of the pylorus, whose normal weight, say, is 180 pounds, who have gone down to 120 pounds, whose lives are miserable, whose dispositions are absolutely changed because of the continual suffering. Those patients, after a simple gastroenterostomy has been performed, will within six months return to their normal weight and return to a condition of health where they can enjoy life. These cases are wonderfully satisfactory, and there are a great many of them.

There are two or three other points I would like to mention, and they are these: I agree perfectly with what Dr. Deaver has said and what has been emphasized so fully in the last few years by the Mayos, by Mayo Robson and Moynihan, that we have reached a point in the surgery of the stomach where we must demand absolute, tangible organic evidence before we resort to any surgery, after we open the abdomen. Undoubtedly, many gastroenterostomies have been performed which should not have been done. But we have reached the point where on exploration, if we do find absolute tangible evidence, we can go ahead with the appropriate treatment. If not, we should admit we have made a mistake, and make the operation purely an exploratory one. I have found in my work that it is absolutely impossible in a large proportion of cases to determine, even

at the time of exploration, even when we have the mass in our hands, a mass the size of a small potato at the pylorus, whether that is a carcinoma or an ulcer. I remember very well one case which I had with Dr. Sippy. It was very interesting to see the clinical diagnosis of that case made by Dr. Sippy of ulcer of the stomach. After making an exploratory incision and drawing the stomach into view, it was found to be a large tumor at the pylorus, with some enlarged glands. I said, "This is carcinoma," and Dr. Sippy agreed with me. I made a partial gastrectomy, removed a third of the stomach, including the pylorus. Immediately we split the specimen open, cut it in two, and we said carcinoma. We submitted it to our laboratory, and what was it? Not a carcinoma at all, but a huge thickening of the submucous tissue and the musculature about the pylorus superimposed upon the ulcer. There is a good example of difficulty in diagnosis. I am rather inclined to think that we did the proper thing in that particular case, and I should advocate in a similar case, where there was the possibility of carcinoma, the making a wide sweeping removal rather than simply a gastroenterostomy.

DR. CHRISTOPHER GRAHAM, of Rochester, Minn.: I am very glad to have had this opportunity of hearing Dr. Sippy's paper. I agree with him. I believe that if all cases of ulcer were treated properly, medically, a far less number of them would go to surgeons. I also believe that if we would teach our patients to eat properly, to masticate the food thoroughly, many less would go to the physician. So I am perfectly in agreement with what Dr. Sippy has said. I believe most ulcers of the stomach are medical and should be treated by medical men. It is refreshing to see and to hear surgeons acknowledge that they have made mistakes in these cases as medical men have, and I am glad to see the surgeon and the medical man getting closer and closer together, but I believe the surgeon has come down further than the medical man has gone up to meet him.

I want to say a few words about the cases that trouble us in making a differential diagnosis between ulcer of the stomach and appendicitis. There is a form of chronic intermittent appendicitis that gives the symptoms of chronic, complicated ulcer, in that the patient has no pain whatever in the abdomen; no sensitiveness at McBurney's point. There may be increased secretion, increased acidity. The patient will have vomiting and a whole train of symptoms which run a good deal as chronic ulcer runs. The symptoms are not so constant and lack the typical ulcer picture. There may be a little relief from food, but food usually brings the trouble on as in chronic ulcer. In a few of these cases there is considerable hemorrhage, and while a diagnosis of ulcer is made, no ulcer will be found. In many cases fecoliths are found. There has been no hemorrhage since operation and the patients have been all right up to the present time. Ulcer of the stomach has been diagnosed and mistaken for other conditions, operation made, and found to be quite unnecessary. The surgeon is getting to be a good deal more conservative; is a great deal more careful about doing gastroenterostomy, and he is demanding that there shall be signs of obstruction or perforation which shall really call for operation. We have seen a great many patients upon whom gastroenterostomy was performed again present themselves to the surgeon with their usual trouble, and a certain number of them, when the gastroenterostomy loop has been restored, would go on normally. But that trouble is lessening. The surgeon is learning that every case is not a surgical one; and he is now giving some little place to the physician, and the whole thing is readjusting itself gradually but surely.

DR. SIPPY (closing the discussion): Just a word lest we forget. I think we should, as we all do, acknowledge the enormous debt we owe to surgeons for having brought about this wonderful agreement between surgeons and medical men. After all, it was a surgeon who forged ahead and did more towards cleaning up and bringing about the present status as to whether ulcer of the stomach should be treated medically or surgically than the medical man has done. In this connection I want to bring up a practical point, emphasize it, and one which I think we ought to have in mind, namely, Virchow, with carefully collected statistics has brought out the point that 35 per cent. of all cases of carcinoma affecting the human body are located in the stomach. It is recognized, at least, that 10 per

cent. of all cases of carcinoma begin at the seat of ulcer. That is the lowest figure. One hundred per cent. of all cases of carcinoma coming from ulcer is the highest figure. Somewhere between these two extremes the truth lies, no doubt. Nowadays, nearly every patient afflicted with gastric ulcer goes to some physician on account of stomach discomfort and distress, asking for relief. That a large number of these cases are overlooked there can be no question. Is it not our duty, then, to go to work and prepare ourselves in such a way that we can recognise the symptoms of gastric ulcer early, so that these patients may be treated surgically and carefully, so that this demand on the part of the surgeon for operative procedure to remove complications and sequelæ would not result if the cases had been treated properly, and, more than all, prevent the tremendous waste of life from carcinoma of the stomach?

THE PROGNOSIS OF VALVULAR HEART LESIONS.

ELLIS K. KERR, M.D.

Instructor in Medicine, Rush Medical College.

CHICAGO.

One of the most interesting problems that comes up in connection with valvular heart lesions has to do with the question of prognosis. The patient will want to know first of all whether or not he has heart disease, as he calls it, and if he has it, how long he will live and whether he will drop dead suddenly. Entirely apart from the patient's desires and considered merely as a question of scientific interest, the prognosis should interest the physician as much as, or perhaps more, than any question that may arise, not even excepting the treatment of the case. It is manifestly impossible in most cases to put a definite limit of life on any one case. The most that one can do is to group the cases roughly and, by weighing the various factors, arrive at a judgment that in the individual case may err widely but on the average will be not far wrong. It is our purpose this evening to analyze these factors.

An accurate diagnosis is necessary before arriving at any conclusion regarding prognosis. The diagnosis should establish:

1. The valve involved and the lesion present—i. e., an insufficiency or a stenosis. This is often a relatively simple matter, as the diagnosis depends on well understood data. At times, however, especially in combined lesions and in the very slightest lesions, a diagnosis may be very difficult, and there will be a variety of opinions expressed by different men. As for the combined lesions, my experience has been that every one recognizes the important elements, the difference of opinion being chiefly in regard to slight lesions complicating more severe ones. In the slight lesions, or, better, where the question arises as to whether or not a lesion is present, the diagnosis is rather important. Perhaps mitral insufficiency comes most often in question, and concerning this I wish to state emphatically that a murmur in itself is not enough to make a diagnosis on. There must be some displacement of the apex outward, or other evidence of enlargement of the heart, and, unless there be some accentu-

* Read at the meeting of the Winnebago County Medical Society at Rockford, Ill., April 13, 1909.

ation of the pulmonary second tone, there is probably no lesion present in spite of a murmur. Very often such a murmur depends on anemia or some other change in the blood, so-called hemic murmurs, or there may be anatomical peculiarities in the chordæ tendinæ that cause the first tone to be muffled. These murmurs are most often heard at the base of the heart, in the third interspace just to the left of the sternum. They may be heard at the apex. It is to be remembered that the second pulmonary tone is often louder than the aortic in children. In adolescents and children when such an apparent accentuation is associated with a systolic murmur we are frequently forced to withhold our opinion till time shows us that the murmur is functional. The second aortic tone is often accentuated owing to a high tension associated with arteriosclerosis and in this case we may overlook a mitral leak. This occurs not infrequently in hospital cases when a murmur disappears on rest in bed. It may often be brought back by having the patient exercise. Another error that is frequently made is in diagnosing an aortic stenosis on a systolic thrill and murmur over the aortic area. If it is remembered that aortic stenosis is a rare lesion and should not be diagnosed unless there are other signs present, such as a decided muffling or absence of the second aortic tone and a slowly rising and long sustained pulse wave, we shall make this blunder less often. The systolic thrill and murmur found in the aortic area are most often due to aortic insufficiency, the result of arteriosclerosis of the valve, or to an aneurism; only rarely are they due to an aortic stenosis.

High grade mitral stenosis will often show only the evidences of broken compensation and may be diagnosed as a myocarditis. In these cases there are often no murmurs, or at most a systolic murmur that is interpreted as due to a relative insufficiency. The small, hard pulse, the high area of dullness due to dilatation of the left auricle, and a peculiar slapping quality of the first tone will often put us on the right track. I remember one such case that was decided by one of the men who remembered that on a previous stay in the hospital there was unmistakable evidence of a mitral stenosis present. On the whole, we may say that the diagnosis of the lesion is relatively simple.

2. The extent of the lesion. This is perhaps of more importance than is the diagnosis of the lesion itself. And right at the beginning we may say that the murmurs present offer us practically no aid, except that as a rule a loud murmur indicates a slight lesion and a relatively good condition of the heart muscle. A loud murmur which becomes weaker indicates muscle weakness as a rule. We shall have to get our chief evidence from other sources and I wish to emphasize the importance of the examination of the apex beat by palpation. Often enough we are not able definitely to locate the apex beat and must rely on percussion, but when we can locate it and can define it accurately we have definite and unimpeachable evidence of the exact condition of the left ventricle, since we can tell by the width of the apex whether or not this cavity is dilated and by the force of the impulse whether there is hypertrophy present and to a degree how much. The general precordial impulse and the epigastric pulsation give us information as to the right

ventricle, which is, of course, substantiated by our findings on percussion, and we may diagnose right ventricle hypertrophy on an accentuation of the second pulmonary tone, for this indicates increased tension in the pulmonary circuit and that in turn means more work for the right ventricle, which must have hypertrophied in order to do its work. From our information as to the size of the heart, then, we may diagnose the extent of the lesion. It will happen that there will sometimes be a considerable dilatation of the heart from a slight lesion when there is an associated myocarditis present. In these cases we may make an error in diagnosis, but the prognosis will be the same. As a rule a large heart means an extensive lesion and a slight change in the size of the heart means a slight lesion. As a corollary the question as to the stationary or progressive character of the lesion comes up. We may say that as a rule an insufficiency is apt to be stationary while stenosis is more apt to progress. Other factors enter here that will be discussed later.

3. Compensation. A very important question to decide is whether compensation is perfect or not. We can get important evidence regarding this point from the history. If there has been shortness of breath on exertion, cough, etc., present, then probably compensation is imperfect or on the edge of breaking. In the examination the different lesions must be considered separately. Mitral insufficiency entails hypertrophy and dilatation of the left ventricle, dilatation of the left auricle, increased tension of the pulmonary circuit and a consequent hypertrophy of the right ventricle. Dilatation of the right ventricle is not a necessary part of the picture, and when it occurs it means an imperfect compensation. Clinically this dilatation shows itself in a displacement of the right border to the right. Hypertrophy of the right ventricle will not in itself change the right border much. So that we may say that a displacement of the right border beyond the right border of the sternum on moderately deep percussion means an imperfect compensation. In mitral stenosis there is always some insufficiency present, and the only further statement necessary is that a high-grade stenosis is never perfectly compensated. In both mitral lesions the results are the same—i. e., passive congestion of the pulmonary system, as shown by bronchitis, edema, etc.; passive congestion in the portal circuit, as shown by an enlarged, tender liver and ascites, and passive congestion in the systemic venous system, as shown by edema of the dependant portions of the body, especially the legs. Aortic lesions, when compensation fails, show the same symptoms and signs as mitral lesions. There may develop a relative mitral leak from dilatation of the left ventricle or the symptoms and signs of broken compensation may develop without there being any relative valvular leak. When there are both aortic and mitral leaks present it is often difficult to say whether the mitral insufficiency is primary or is a relative lesion due to dilatation. Often this is impossible to determine, since in the cases due to arteriosclerosis of the aortic valve the anterior cusp of the mitral valve is often affected. It is worthy of note also that an aortic leak due to an acute endocarditis almost never occurs alone, the mitral being also affected in the majority of the cases.

4. Cause. Pathologically there are two important groups of cases of valvular lesions. In the one group where an acute endocarditis has occurred the valve curtains are thickened and retracted from scar contraction and the chordæ tendinæ are thickened and shortened. Frequently the cusps of the valve are adherent. The changes in these cases are always on the free edge of the valve, the attached margin being unchanged. In the other group the valve changes depend on primary changes in the aorta and occur by a process of extension from the aorta. Hence the attached margin is thickened, and often, indeed, calcareous. The valve segments become thickened and do not coapt perfectly or the opening may be stenosed. The aortic valve is most frequently involved in this sclerotic process, though the mitral may also be involved, owing to the fact that the anterior cusp arises from the aortic ring. The mitral valve is most frequently involved in the acute endocarditis process. Acute endocarditis is, of course, most often the result of acute articular rheumatism, though it may occur with scarlet fever, septicemia, pneumonia and other acute infectious diseases at times. Often enough we can get no history of any preceding acute infection and still find at autopsy the characteristic lesions resulting from an acute endocarditis. This does not appear strange to us when we consider how frequently we meet in hospitals obscure infections that, by the subsequent development of valvular lesions only, we recognize as acute endocarditis. Many cases of valvular lesions give a history of "malaria" or other acute diseases that were nothing more nor less than acute endocarditis that was not recognized as such. The etiology of the primary sclerotic process is the same as that of arteriosclerosis. Syphilis, alcohol, lead, hard physical work, over eating and the stress and worry of active business life are the most important factors. We can usually find in these cases more or less sclerosis of the peripheral arteries with a high blood pressure and often a sharp ringing second aortic tone. There may also be evidence of chronic interstitial nephritis, as shown by an increased amount of urine of low specific gravity, with a trace of albumen present at times and hyaline and granular casts. Often enough there is the nervous and mental evidence that we associate with cerebral sclerosis, such as paresthesias, numbness or transient monoplegia, headache, dizziness, syncopeal attacks, etc. It is of the utmost importance to recognize these two groups of cases, for the prognosis is much different in the two groups. In the primary sclerotic group the vessels of the heart itself are often involved with the production of chronic myocarditis, angina pectoris, etc., and the patient may drop dead from an acute dilatation of the heart. Then the lesion is more apt to be progressive. These cases occur as a rule later in life, from 40 years up, but it must be remembered that they may occur in the thirties, and even in the second decade. A tendency to an early sclerosis frequently runs in families and we get a history of father, grandparents, uncles, cousins, etc., dying at 40, 50 or 60 odd years of apoplexy, "dropsy," angina pectoris, or other manifestations of vascular mischief. In the group due to a primary acute endocarditis the lesion is less apt to progress, the heart muscle is not so often involved and the condition occurs more often early in life.

Having made a diagnosis not only of the lesion, but also of its extent, the condition of compensation and the cause of the lesion, we are ready to consider the prognosis. As regards the prognosis in the different lesions we find a variety of opinions expressed. There is no question that mitral insufficiency offers the best prognosis of all, and, taking all the cases of aortic insufficiency, this offers the poorest prognosis. If, however, we separate the latter group as to the cause we find that the cases due to a primary acute endocarditis offer almost as good a prognosis as does mitral insufficiency. Both aortic and mitral stenosis are more severe, and again we must separate the slight from the severe instances of mitral stenosis. The milder cases of the latter, where there are no pulse changes but the predominating condition is the insufficiency that is always present, offer almost as good a prognosis as mitral insufficiency alone. The severe cases, on the other hand, offer almost as serious a prognosis as does aortic insufficiency due to arteriosclerosis. We should arrange the lesions then in the following order of increasing danger:

1. Mitral insufficiency.
2. Mitral stenosis of slight degree.
3. Aortic insufficiency due to acute endocarditis.
4. Aortic stenosis.
5. Mitral stenosis of high grade.
6. Aortic insufficiency due to primary chronic endocarditis.

Combined lesions for the most part have already been considered. Thus it has been noted that practically every case of mitral stenosis shows more or less insufficiency and that many of the cases of aortic insufficiency show more or less mitral insufficiency. In both these cases the mitral leak does not affect the prognosis very much. In combined aortic and mitral insufficiency there is frequently found a presystolic murmur just external to the apex, and the question arises whether this murmur indicates a stenosis at the mitral orifice or whether it is the so-called Austin Flint murmur. Frequently the only decision that can be arrived at is that the stenosis, if present at all, is very slight. Where tricuspid insufficiency is diagnosed, together with a mitral or aortic and mitral lesion, it would be hard to say whether this is a primary or a relative lesion. Where with improvement the signs of tricuspid insufficiency disappear we may diagnose a relative lesion positively, and in general it is to be remembered that a primary tricuspid lesion is very rare and should almost never be diagnosed, particularly when compensation is imperfect. A primary tricuspid lesion is to be suspected, however, when portal stasis is much more marked than is systemic stasis. This marked disproportion occurs chiefly in right heart lesions, whether due to valve disturbances or to passive congestion in the lungs, due to emphysema. It also occurs in adherent pericardium.

The extent of the lesion affects the prognosis directly—i. e., the more extensive the lesion the poorer the prognosis.

Compensated lesions offer, of course, a better prognosis than do uncompensated lesions. Broken compensation is, in fact, a bad prognostic sign, but here the cause of the break is important. If it occurs after

very severe exertion, as in mountain climbing, the heart may once more regain its tone, while if the break occurs in the course of ordinary pursuits, the prognosis is, of course, grave. I remember a case, however, at the Cook County Hospital where we made a blunder in prognosis from too closely following this rule. We had watched a case develop a mitral and aortic insufficiency following an acute rheumatism and had kept the patient very quiet. One day he went to clinic and during the clinic became faint and showed a rapid, irregular pulse, with some evidence of dilatation. He improved somewhat and wanted to go home. We advised against this, and, when he insisted, cautioned him to be very careful and told him how grave his trouble was. Three months later he entered the hospital again on account of an acute bronchitis and told us he had remained at home only two days. Then he went to work as a switchman in a freight yard and had worked ever since. His heart was perfectly compensated, and, except for his acute bronchitis, he was in good shape. Evidently his experience in the clinic had been of a purely nervous character.

As regards the effect of the cause of the lesion on the prognosis, enough has already been said.

Certain personal factors are important. The age of the patient, for example, will affect our prognosis. In general we may say that the prognosis is best in adolescence and early adult life and grows grave as age increases. The reason is that the young have a better general and especially cardiac tone and the heart muscle has more reserve to draw on. It is entirely a question of heart muscle. In children, on the other hand, the onset of puberty is apt to draw heavily on the reserve and may overbalance a well compensated lesion. Then the frequent recurrences of the acute process add a further strain, so that the prognosis must be more guarded than in adolescents.

Sex is not of so great moment in children, though girls as a rule are easier to control than boys. In adult life it is to be remembered that men are more exposed from their occupations and are more apt to have bad habits than are women. In the latter pregnancy is of questionable effect. I have seen some cases where an acute endocarditis has developed on an old lesion from an infection during delivery that would probably not have been of any importance in a healthy woman. Then at times a well-established compensation becomes broken, but, on the whole, it is surprising how well these cases do. At the best pregnancy must be understood as introducing a doubtful element into the prognosis and, therefore, must lead us to be very guarded in our opinions.

The habits of a patient are of importance in the prognosis. Excessive use of alcoholics is, of course, bad, as are other excesses. Hard outdoor work in all kinds of weather is hard on an already weakened heart and will tend to strain the compensation to the breaking point. At the same time, too much coddling, especially in children, will not permit the development of normal general resistance. The necessity for earning a livelihood at whatever kind of work the patient is fitted to do makes the social status of the patient an important factor in the prognosis. As a general rule the chances are better in those individuals of the

better class whose mode of life may be fixed by choice and not by necessity.

The importance of the family history has been mentioned above in discussing the cause of the lesion. A family tendency to early arteriosclerosis gives, of course, a relatively bad prognosis.

Certain associated conditions may be of great importance in the prognosis. Of those affecting the cardiovascular apparatus there are especially pericarditis, arteriosclerosis and high blood tension. Pericarditis, as is well known, frequently occurs in acute articular rheumatism and may rarely give rise to adhesions between the layers of the pericardium and between the latter and the other structures in the mediastinum. The latter condition, as you know, embarrasses the heart action and soon leads to dilatation and broken compensation. But, apart from these cases of so-called *concretio cordis*, there is another fact to be borne in mind—namely, that in every case in which the pericardium and the endocardium are involved the myocardium is also affected. This may be only to a slight degree, or it may be so severe that the heart never becomes compensated and death occurs from heart failure within a few months of the original infection. The condition in these cases may well be termed *pancarditis*, and this possibility must be borne in mind in every case of pericarditis. The local effect of arteriosclerosis on the heart muscle, etc., has already been considered. The effect of long continued high tension, with or without arteriosclerosis, is, of course, bad, in that the work of the heart is thereby materially increased. Such an increase in tension occurs in all forms of Bright's disease, but especially in the chronic interstitial nephritis. Emphysema is also an important factor, since it raises the pulmonary pressure and thereby embarrasses the right heart. All of the diseases that are followed by general disturbances of nutrition would modify our prognosis, since the heart would be involved with the rest of the body. Then it is to be remembered that any acute infection that a healthy person would stand may close the scene, and of these the most important is pneumonia. The importance of pneumonia as a terminal infection in chronic diseases was well shown in a series of 174 autopsies on cases of pneumonia at the Cook County Hospital which I reported. Dividing the cases in three groups, one with no chronic lesions, one with so well marked lesions as to be recognized clinically and a third in which there was some chronic lesion found at autopsy that was not recognized during life, I found these groups of almost equal size, showing that in two-thirds of these cases pneumonia was a terminal infection.

Finally note is to be made of certain accidents that may happen in cases of valvular disease.* Embolism may occur, for instance, especially in mitral stenosis, where the dilated auricle permits the formation of thrombi, which on occasion are swept into the blood stream and carried most often up by the innominate and right carotid artery to lodge in the middle cerebral artery with the production of hemiplegia or even death. Sudden death may also occur from dilatation of the heart muscle when the latter is degenerated as the result of sclerosis of the coronary arteries. If one has the opportunity of visiting the autopsies

held by the coroner's physician in a large city he will shortly come to understand the extreme importance of this condition as a cause of sudden death.

We may summarize our conclusions as follows:

1. An accurate diagnosis must be made of the lesion, its extent, the condition of the heart as regards compensation, and the cause of the lesion.

2. The cause of the lesion, the age, sex, habits and family history of the patient, and the presence or absence of general and local diseases are important in prognosis, chiefly from their effect on the heart muscle.

3. The condition of the heart muscle is the most important factor in the prognosis of valvular lesions.

103 State Street.

MUSCULAR POWER IN TENOTOMY AND TENOPLASTY.

A. STEINDLER, M.D.

CHICAGO.

When the tenotomy of contracted muscles came to be generally recognized by the introduction of the subcutaneous method the facilities created by this simple, harmless and effective method in the treatment of contraction deformities were looked upon as indicating a new era in orthopedic surgery.

We need not be surprised at the overwhelming appreciation of this operation before the time when the plastic operations have been practiced; nor are we at a loss to understand the preference the former method is given even now if we consider the practicability and harmlessness of its technic. But the question must be raised, if we do not grant too large a field of indications to an efficient and appealing method; if the operation also meets the physiological requirements which will have to be provided for the tenotomized muscle after it re-assumes its function; and finally, this not being the case, if not certain restrictions would have to be placed upon the indication of the tenotomy.

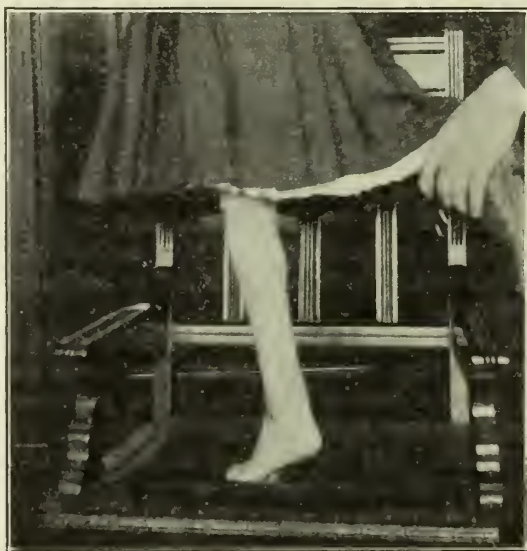
Supposing the tendo Achilles is to be severed in a case of partial paralysis of the peroneal nerve resulting in front foot drop and contraction of the triceps surae. Before the operation the tendon of the muscle is in a state of nutritive shortening, provided the disturbance has been established for a sufficient length of time. The muscle itself is in a state of contraction exceeding the normal tension of the muscle, due to the lack of full action of the antagonists, but not yet in the state of extreme contraction, owing to the rest of the antagonistic force still present.

When the tendon is divided the muscle at once, being free from the antagonistic counteraction, assumes the state of extreme contraction, exhausting its rest of contractibility, pulling apart both ends of the divided tendon. The gap, after correction of the deformity, amounts to 4 cm. and more, especially if the tendon has been divided at some distance from its insertion on the tuber ossis calcis, as it is the rule.

After a few weeks the gap is bridged by connective tissue and it is regarded as one of the triumphs of the achillotomy that the divided ends hardly ever fail to reunite.

The result of the operation, therefore, is some shortening of the belly of the muscle (increased contraction) and considerable lengthening of the tendon of the muscle. In order to judge the significance of these muscular conditions in regard to the muscular efficiency we have to recall certain physiological facts.

First, the power of the muscle is largest in the beginning of the contraction, decreasing gradually toward the point of extreme contraction, where it is equal to nothing. Beyond the point of the least contraction the elasticity of the muscle will be claimed for by any further



extension, reaching, however, its limit very soon. Thus, for every muscle there exists an optimum of activity (maximum of disposable energy) at the very beginning of the contraction and a minimum of activity (minimum of disposable energy) at the end of the contraction.

From these considerations we may very easily conclude that, while we are able by tenotomy—i. e., lengthening the tendon and shortening the belly of the muscle—to give the latter an anatomical shape that will permit the desired correction of the deformity, we, on the other hand, deprive the muscle of a certain amount of activity, which rather culminates in shortening of the tendon (comparatively) and lengthening or extending the belly of the muscle.

Yet we are able to furnish the latter condition for the muscle by tendoplasty, when we divide the tendon, correct the deformity and then unite the tendon, exerting a certain extension on the belly of the muscle. Now, in drawing any practical conclusions from these facts, I think I

can not be too careful in restricting the indications. I am fully aware that in many cases of anterior poliomyelitis the paralysis is so extensive that the correction of the deformity furnishes the foremost indication, while the gain of some muscular power is a question of minor importance. Furthermore, tendons that have been rendered too long by tenotomy will adapt themselves to a functionally suitable length after a certain time.

But there are cases of partial paralysis in anterior poliomyelitis and cases of spastic paralysis in polioencephalitis where it is worth while to carefully preserve the muscular power by performing Aehillo-tendoplasty instead of aehillotomy. I will only quote a well-known cases of Lange.¹ A double side aehillotomy performed on an 18-year-old youth for paracases of partial peroneal paralysis with front foot drop I found that the in spite of proper plaster of Paris fixation, owing to the functional weakness of the tendon. Normal function of the muscle was established only after the tendon had been properly shortened by folding. In several cases of partial peronial paralysis with front foot drop I found that the plasty of the tendo Aehilles gives a good functional result as soon as union is accomplished, so that often fixation in plaster of Paris for 4 to 6 weeks proves sufficient for maintaining the foot in corrected position. The photograph shown (Fig. 1) concerns a case of tendoplasty where the cast was removed after 4 weeks, the tendo Achillis proving to be in good condition. The ability of standing on the toes is, I think, a good test for the muscular efficiency of the triiceps surae.

I do not intend to do more than to put in a plea for performing the tendoplasty in preference to the popular tenotomy in certain cases, on the ground of the physiological shortcomings which adhere to the latter method.

100 State Street.

IMMUNITY.

A REVIEW OF OUR KNOWLEDGE CONCERNING TOXINS, ANTITOXINS, AGGLUTININS, PRECIPITINS, CYTOLYSINS AND BACTERIOLYSINS.*

WILLIAM C. BOUTON, A.B., M.D.

Secretary of Lake County Tuberculosis Institute; Ex-President Lake County Medical Society

WAUKEGAN, ILL.

This paper will contain nothing original, but is simply a careful review of the subject, the facts having been gathered from Adami's General Pathology. My reasons for presenting this subject are that it is one of great and steadily increasing importance and judging from the knowledge, or rather lack of knowledge, of this subject among the leaders of the local profession, who, I am sure, are fully as up-to-date as the average general practitioner, I am satisfied that the rank and file

1. München. med. Wehnschr., 1902.

* Read before the Waukegan Clinical Society in January, 1909.

of the medical profession have rather vague ideas concerning these very important topics and I believe that the facts presented will be both new and interesting to the majority of physicians, who either have not the time or the inclination to study the subject carefully in the latest works on pathology. This paper will be followed by another, which will review the subject of opsonins, aggressins, anaphylaxis, phagocytosis and the side-chain theories of immunity. I shall, of course, try to present only the most important facts, for it would require a volume to cover the subject with any degree of thoroughness.

Immunity may be defined in a general way as an adaptation or modification of the system which affords protection against influences which without such adaptation would bring about cessation of activity and finally death. Speaking broadly, the individual may be regarded as having gained through inheritance a relative immunity within certain limits toward the action of all physical, chemical and organized agents which constitute his normal environment. In the course of infectious diseases and those caused by certain organic substances there are developed within the system certain substances or so-called "antibodies," by means of which toxic matters become neutralized so that the system becomes protected, the morbid process subsides and the convalescence follows. This is the process of immunization which makes the majority of infectious diseases self-limited and gives them a favorable ending.

It would be interesting but would require altogether too much time to review the history of the investigation into the nature of infection, immunity and the various injurious and protective agents. Among those whose names will always be illustrious in medical history as the pioneers and greatest investigators in this most important field of science are Jenner, Koch, Pasteur, Ehrlich, Metchnikoff, Brieger, Roux, Yersin, Behring, Lister, Pfeiffer and Kitasato. Hankin of Cambridge in 1888 first isolated defensive bodies from the tissues and showed that these neutralized the toxins of the bacteria. Büchner in '89 made similar observations and named the bodies which he isolated alexins. These two men laid the foundation of our knowledge of so-called antibodies. Several observers during the next few years found that the blood-serum of animals, which had become immunized against pus infection and rabies respectively, when injected into other animals, conferred immunity upon them also, and these observations led up to the great work of Behring and Kitasato in diphtheria and tetanus. Roux did great service in developing the practical methods of employing diphtheria antitoxin. The investigations of these men revealed the existence of another form of immunity, called by Ehrlich passive immunity, not produced by the reaction of the infected animal, but due to introduced antitoxic substances in contradistinction to the active immunity induced by such reaction.

Since the fundamental work of these men in 1890-91 there have been great advances in detail, both in confirmation of their results and in further analysis and determination of the nature and mode of action of the bodies known as toxins, antitoxins and other offensive and defensive agents. Ehrlich and Pfeiffer have done splendid work along these

lines and Bordet, in his able study of the process of hemolysis, published in 1898, showed that immunity was dependent in most cases not only upon one but upon two bodies, the one called "complement," present in the normal system, and the other called the "amboceptor," or "specific immune body" developed in reaction to the presence of toxins. Another important discovery was that of Martin and Cherry, who found that toxins and antitoxins form chemical combinations, and so also was the discovery of Preston Kyes in 1903 that a body of approximately known character and composition—viz., lecithin—can take the place of one of the bodies entering into this chemical union. To Bordet and Ehrlich also we owe the knowledge of the formation of cytolytins—i. e., the development in the organism of substances which protect against and destroy the cells of other species or of other individuals of the same species—these substances being developed as the result of progressive inoculation of this particular order of cells.

Having taken this cursory glance at the history of this great science, let us now proceed to review the present knowledge of this most important field and consider quite carefully the nature of toxins, antitoxins and the various related substances. There is no exact definition of a toxin. The usual definition is a poison against which it is possible to gain immunity by means of an antibody, but this definition includes not only bacterial products but also various vegetable poisons, animal and vegetable enzymes, animal venoms and certain animal cell substances. Toxins are characterized by the following properties—viz., they are, one and all, the products of cell metabolism, they act in most minute doses, they diffuse with difficulty, and so far not one of them has been positively obtained in a state of purity. They are closely allied to proteins, if not exactly proteins, and are of a colloid nature, as shown by their low diffusibility. The more readily diffusible toxins are called exotoxins, while those very slightly, or apparently not at all diffusible, are called endotoxins. These exotoxins may be regarded as cleavage products of protein metabolism. When these bacterial exotoxins are inoculated into the blood of an untreated animal they rapidly disappear. Sometimes within a few minutes the blood is found innocuous. This in the non-immunized animal is not due to any process of neutralization occurring in the circulation, but to absorption by the leucocytes and by various tissue cells. If tetanotoxin be employed, the blood loses its toxicity, while all other organs with one exception give extracts that are toxic. This one exception is the brain and nerve matter with which the toxin enters into so intimate a combination that it can not be separated as it can from all other organs. It has been found that only such cells and tissues as these which, so to speak, anchor the toxins eventually develop the antitoxins and it has by other methods been demonstrated that antitoxin production occurs only in those individuals whose cells have the specific power of binding the toxin in a firm union. For specific antitoxins to be produced there must first have been a direct union with, and action upon, the cell substance on the part of the toxin. It has also been demonstrated that by subjection to heat and by other methods

the diphtheria toxin can be so modified that its toxic action is greatly lowered or entirely lost so that it is quite harmless and yet, when inoculated, such modified toxin leads to the development of antitoxin. The existence of the modified toxins or so-called toxoids and their capacity to induce immunity afford proof that the toxin molecule consists of at least two subordinate groups, one that anchors the toxin on to the cell substance, called by Ehrlich the haptophoric group; the other, called by him the toxophore, being able when present to so influence the cell activities as to set up toxic disturbances. An interesting experiment by Morgenroth confirms the existence of these two groups—haptophores and toxophores. He took three frogs and injected tetanus toxin into them without obvious effect, for at ordinary temperature these cold-blooded animals are not susceptible to tetanus. These he kept for several weeks in the cold. Had the toxin been still circulating in the blood the subsequent injection of tetanus antitoxin would have neutralized it: had it been excreted no symptoms would have developed. But when these frogs were warmed symptoms of tetanus appeared. The only possible explanation is that the toxins had become anchored to the nerve cells and, being so combined, could not unite with the circulating antitoxins. But, if so, then the haptophores must have united with the nerve cells in the cold and the toxophores only became active when the temperature was raised. Ehrlich has shown the existence, more particularly in old toxin solutions, of a series of modifications of the toxins, so-called protoxoids, syntoxoids and epitoxoids, and also bodies, which have little affinity to toxins, and which he called toxones. The active toxins themselves may show variations in their readiness to combine with antitoxins, and Ehrlich distinguished these variations by the names, proto-, deuterio- and tritoxins.

We now come to the very interesting question of just how the antitoxin is produced. It used to be thought that there was a direct conversion of the toxin into antitoxin, but this is certainly not so, for the amount of antitoxin produced is far out of proportion to the amount of toxin injected. It has been shown that the toxin unit in a horse immunized against tetanus leads to the production of about 100,000 antitoxin units. It is therefore doubtless true that, while the toxin stimulates the cells in the first place, yet it is the cells themselves which assimilate the necessary constituents and build up and discharge the antitoxins into the circulation. The manner in which this is brought about is undoubtedly best explained by Ehrlich's side-chain theory. Indeed there has been no other explanation offered which is at all satisfactory. We have already seen that the toxin or toxin molecule has its haptophore and toxophore. According to Ehrlich's theory, the large cell molecule has not only one but several orders of haptophores or anchors by means of which it attracts and combines with itself all the various orders of food-stuffs. Ehrlich calls these anchors or haptophores, receptors, and to these receptors the haptophores of the toxin molecules become attached. These receptors of the cell molecule are the side-chains of Ehrlich's theory, and thus certain groups of unsatisfied side-chains attract and combine with

the haptophores of the toxin molecules. The toxin molecules, if the toxin is not too strong for the cell molecule or if too many toxin molecules do not become attached to the cell molecule by these side-chains, will be neutralized by them. Such neutralizing receptors or side-chains are called intracellular antitoxins.

Now, how is free antitoxin discharged into the blood? According to Ehrlich, the very act of combination of the toxin molecules with the receptors stimulates the cell substance to reproduce more of these particular receptors or side-chains than is necessary and then the overproduction or excessive side-chains are discharged from the cell into the blood. This view is based upon Weigert's law of inertia—viz., that once a cell is stimulated to perform a certain act it continues to perform that act for some time after the stimulus has ceased to act. Adami, however, does not fully agree with Ehrlich's theory, stating that this production of side-chains or antitoxins continues for a longer period than was contemplated by Weigert, and that his law does not explain why the anchoring of the toxin by a particular side-chain acts as a stimulus to the production of new side-chains of the same order. He also believes for certain reasons that there is a normal discharge into the blood plasma of a large number of "potential" antitoxins—i. e., of antitoxins having affinities for certain toxins—and that it is only when these toxins enter the system that the particular antitoxins become developed in relatively enormous quantities. Adami believes also that the toxin molecule, instead of becoming fixed to the cell molecule by means of the receptor or side-chain, removes and separates the side-chain from the molecule. He says that the known facts regarding the extraordinarily minute quantities of toxin capable of causing death of relatively large animals leads him to believe that ferment action must play a part—viz., that the toxin molecule, having separated one side-chain, becomes liberated from this and free to separate another side-chain, until, by disintegrating the cell molecule more rapidly than it can build itself up, it causes dissolution and death of the cell. When the toxin, however, does not cause cell dissolution and death, its continued existence for some time within the cell causes the overproduction of side-chains or antitoxins, and these, being developed in excess of the needs of the cell, are discharged into the circulation. Considerable more might be said on the nature of the union of toxin with antitoxin, but, not to take up too much time, I will state only two or three interesting facts—one is, that a combination of toxin and antitoxin, which is absolutely neutral for individuals of one species, may be fatal for those of another species. Another fact which has been found true for quite a number of toxins is that if the amount of toxin has been accurately determined which, added to a given amount of antitoxin serum, completely neutralizes it, and if now only half the amount of the required toxin be added and then after some time the other half be added, the result is not a neutral but a toxic mixture. There are two explanations of this result, one being that there are present, besides the active toxin, certain toxoids which unite with part of the antitoxin when only part of the required amount of toxin is added but not when all of it is added, so

in the first case part of the toxin is left uncombined with antitoxin. The other explanation is that it is due to enzyme or ferment action. Another interesting fact is that if a mixture of tetanus toxin and antitoxin, in which the toxin is in excess, be diluted with water, the toxicity is decidedly increased. Jacobi believes that this is due to hydrolytic dissociation of the toxin and antitoxin.

How does antitoxin act upon toxin within the body or how does antitoxin introduced into the body bring about the cure of infection? Experimentally we find that the smallest amount of antitoxin is required and the least evident disturbance of the system occurs when toxin and antitoxin are introduced at the same time, and least of all when the two agents have been in contact for some time. When symptoms are already present much larger quantities of antitoxin are required and when the disease has been active for some days, no amount of antitoxin will prevent the fatal result in the large majority of cases. No fact is better established than this, especially in the treatment of diphtheria. I will not enter into any long explanation of this well known fact, but will simply give Adami's conclusions in his own words—"We would conceive antitoxins introduced into the system as (1) neutralizing any free toxin molecules in the circulating fluids of the body and so preventing their action upon the cells and (2) as gaining entrance into the cells and there, not so much acting directly upon the toxin molecules present (for they are already combined) as affording to the biophores or cell molecules that excess of side-chains necessary to build them up again and to neutralize the toxin molecules should they become temporarily free—in other words, affording to the cell physiological rest, together with the particular assimilable matter which has been used up by the activity of the toxin."

We will now proceed to consider three important and interesting conditions related to bacterial action—viz., the production of agglutinins, precipitins and bacteriolysins. I shall try to state the most important facts connected with each of these conditions clearly but, at the same time, concisely. The most familiar example of bacterial agglutination or formation of agglutinins is the well known Widal test, in which the blood serum of a patient with typhoid fever causes agglutination or clumping of the typhoid bacilli in a fresh culture. Adami says that Grünbaum, working under Gruber, observed this phenomenon several months before Widal's paper was published, and the test ought therefore to be called either the Gruber-Widal or Grünbaum-Widal. Agglutination consists, then, in the clumping of free bacteria suspended in physiological salt solution or broth, when there is added to this suspension some of the homologous serum—i. e., serum of an animal which has been inoculated with bacteria of the same species. With this clumping the bacteria, if previously motile, become motionless. The reaction is obtained with a great number of pathogenic bacteria, typhoid, tubercle, and anthrax bacilli, pyo-, strepto- and pneumococci, and many others. It is specific to this extent, that, with relatively high dilutions of the homologous serum, only the specific bacteria become agglutinated. It is non-specific to the extent that, with more concentrated serum, bacteria of

allied species may also show agglutination. The reaction may be followed under the microscope, but is easier to follow with the naked eye, showing a gradual flocculus formation and sedimentation, either in pipettes, long tubes or watch glasses.

It would require too much time to consider in detail the properties of agglutinins or the exact cause and nature of agglutination, but a few of the interesting facts can be given. Agglutinins are relatively highly resistant, withstand drying for many months even when freely exposed to the air and are little affected by light or putrefaction. Most of them when moist can be heated to 62° C. without injury, although a few, including the tubercular, are rendered inactive at 56° C. Like the anti-toxins, they may be present in normal serum. Normal human serum, when concentrated, has been found to cause agglutination of many bacteria and even when diluted thirty times, it may cause clumping of typhoid bacilli. Fetal blood however and that of healthy children under the age of seven, have very feeble agglutinating powers. Clumping is produced both with living and dead bacteria and can be developed in the blood serum by the inoculation of dead cultures. By inoculation of cultures the agglutinating power of the serum can be so increased that one observer obtained clumping of typhoid bacilli in blood serum diluted 1 to 1,000,000 and another observer obtained clumping of colon bacilli in serum diluted 1 to 2,000,000.

Much more might be said on this interesting subject, but I will give only the most reasonable explanation of the process of agglutination. Bordet believes that as the result of the action of the agglutinins there is an alteration in the molecular attraction or tension between the bacteria and the fluid medium. He believes that there is first a junction or union of the agglutinins with the constituents of the bacterial cell and second, a physical action on the bacteria by means of the salts in the fluid medium. He considers it, in fact, a process of the same nature as the gathering of the red corpuscles into rouleaux or rolls, when the blood clots. Sir Lauder Brunton has shown that if matches to represent bacilli and disks of cork to represent blood corpuscles be covered with hard soap and thrown into water, they float about free and isolated until the water is slightly acidulated, when they immediately gather in clumps. If the water is made slightly alkaline and the clumps broken up, they will not form again. More recently one observer has shown that red corpuscles have a fatty surface layer—viz., lecithin—somewhat similar to the soapy layer of the experiment. This observer believes that, through alteration in the physical condition of the environment, the surface of both corpuscles and bacteria becomes so modified as to lead to the physical attraction and adhesion of these bodies.

We now come to the second of the trio—viz., precipitins. It was shown by Kraus in '97 that if an animal is inoculated with fluid cultures of typhoid, cholera or plague bacilli and then, after some days, some of the blood serum of the animal is added to the germ-free culture fluid, a specific precipitate appears in the mixture. The same results occur also if a germ-free culture of the bacilli—i. e., one from which the germs have been filtered—is used for inoculation. It has been found

that the reaction is caused by the proteid substances which are present in the culture. Through the inoculation of these constituents of the culture broth certain so-called antibodies are developed and appear in the blood and these, combining with the bodies present in the culture fluid, cause the precipitate. Such antibodies, first known as coagulins, are now classed as precipitins and a large number of them have been produced by injecting animals with protein-containing fluids of various orders, not only of animal, but also of vegetable origin. Such protein-containing fluids are milk, horse serum, eel serum, human serum, sheep and ox blood globulin, pseudo-globulin, peptones, pleural exudate, albuminous urine, albumin of egg, muscle, serum, casein, milk and vegetables, and also wheat, rye and barley albumoses. These are to a large extent specific—i. e., the blood serum of an animal treated with wheat albumose will cause a precipitate in a solution of wheat albumose, but not in solutions of barley or rye albumoses. The serum of rabbits treated with cow's milk will cause a precipitate in cow's milk but not in goat's milk and what is of considerable importance in some medico-legal cases, the serum of rabbits injected with human blood will cause a heavy precipitate in human blood serum but none in the blood serum of dogs or goats. Certain precautions should be observed, however, in making the last named test, for Grünbaum has shown that the precipitins, developed by injecting into other species of animals the blood of the gorilla, chimpanzee and orang-outang, will each of them cause precipitates in the blood serum of all three species of ape and also in that of man, although they are without effect upon the blood sera of lower animals. While this may be quite a point in favor of the Darwinian theory, yet most of us, I am sure, will not care to be at all intimate with our new but very unattractive blood relations. It has been found, however, that the precipitation is most marked with the homologous serums—i. e., with the serum against which the proof animal was inoculated—and if this precipitin-containing serum be diluted, a point will be reached at which it will still react in a given time with the homologous serum but not with the others. So our relationship with the apes is not so very close after all. If cousins, they are a number of degrees removed and then some. Much more might be said on this subject, but I will add just a few words about the nature of the precipitins. They resemble in properties the other antibodies producible in blood serum: they can be precipitated by various reagents and can be isolated from the bulk of the proteins present in that serum by fractional precipitation—i. e., by making successful additions of ammonium sulphate and filtering off the successive precipitates the precipitins are brought down along with certain globulins and can be redissolved with these. In fact, they can not be separated from the globulins and so it seems probable that these globulins, appearing in the blood serum of inoculated animals, appear there as the result of cellular reaction and activity and if different orders of cells take up at the same time the inoculated material, it is also probable that their reactions vary and that they discharge into the blood these precipitins which vary from them slightly in constitution. Adami also believes that there

may exist or be developed, besides the precipitins, certain antiprecipitins and also precipitoids, bearing to them the same relation as antitoxins and toxoids do to the toxins.

We will now consider the last and most important of the trio, the bacteriolysins or bacterial solvents. The subject of bacteriolysis is, however, more easily understood by first considering a few of the important phenomena of cytolysis and hemolysis or cell and blood corpuscle solution. The serum of guinea-pig's blood has normally very little effect upon rabbit's blood and blood corpuscles, but if rabbit's blood corpuscles are injected into a guinea-pig, the latter's blood serum becomes in a few days extremely active and if some of it be added to a mixture of rabbit's red corpuscles and water, there quickly follows extensive dissolution of the corpuscles with escape of hemoglobin, so-called hemolysis. In order to prevent the formation and possible interference of precipitins, washed red corpuscles are used. This active blood serum of the guinea-pig is called immune. If this immune serum is heated to between 55° and 60° C. before adding it to the suspension of red corpuscles, it produces no effect and it is hence called inactivated immune serum. But now if normal blood serum from either guinea-pig or rabbit be added to this mixture of inactivated immune serum, red corpuscles and water, hemolysis occurs. In other words, neither the normal serum or the inactivated immune serum of the guinea-pig, if added separately to the rabbit's red corpuscles, cause hemolysis, but if added together they cause hemolysis, as does also the active immune serum alone. It is, therefore, proven that the union of two constituents with the corpuscles is necessary in order to cause hemolysis. One is present in the normal blood serum and is called the complement. The other is present in the inactivated immune serum and is called the immune or intermediate body or amboceptor. Neither can cause hemolysis in the absence of the other, but both are present in the active immune serum. It is believed and practically proven that the complement can not unite with the corpuscle directly, but does so by means of the intermediate body or amboceptor, which can become attached to both complement and corpuscle and forms the link between the two, whence comes its Latin name, meaning double-holder. It is believed also but not fully proven, that, just as there are toxoids and antitoxins, so there are complementoids and anticomplements and also amboceptoids and antiamboceptors, the anticomplements uniting with the complements and so preventing the union of the latter with the amboceptors and the antiamboceptors uniting with the amboceptors and so preventing their union with the corpuscles. The process of bacteriolysis is practically the same as that of cytolysis or hemolysis, the bacterium simply taking the place of the cell or red corpuscle. The phenomena of bacteriolysis have been observed in this way. Several times the ordinary fatal dose of an agar culture of the cholera spirillum is introduced into the peritoneal cavity of a guinea-pig, which, by successive inoculations, has been rendered highly immune to virulent cholera spirilla, or a like dose of the spirillum, mixed with an excess of the cholera immune serum from a guinea-pig, is injected into a normal guinea-pig. In either case, by removing with a pipette some of the

peritoneal fluid from time to time, it is seen that the injected bacteria become motionless, swollen and rounded, resembling micrococci and then become progressively smaller, their substance undergoing solution, as Pfeiffer described it, like sugar in water. This same process has been observed in the bacilli of anthrax, typhoid and pneumonia and in streptococcus pyogenes. The following are some of the most interesting and important facts that have been established regarding bacteriolysis.

1. It is brought about by the interaction of amboceptors and complements upon the bacterial body.

2. Antibodies, including both amboceptors and complements, may be found in the blood of normal animals, but the amount of amboceptors is small compared to what may be developed by specific inoculation.

3. The amboceptors are multiple—viz., an animal immunized against both cholera and typhoid provides a serum which, after destroying the cholera spirilla, will, when added to typhoid bacilli suspended in normal serum, destroy these also.

4. By immunization of animals against a specific microbe specific immune bodies are developed, acting particularly upon the species of micro-organism employed for inoculation.

5. It is possible to develop temporarily non-specific protective powers on the part of the organism. Such increased resistance against pathogenic bacteria in general may be developed at the height of inflammation and it is doubtless associated with increased leukocytic activity.

6. The antibacterial amboceptors as a class are unaffected by heating for several hours to 60 C., but are destroyed at 70.

7. They are not immediately produced upon inoculating animals with bacteria: usually several days elapse before they are recognizable in the blood.

8. Once developed by the organism, they are to be recognized in the blood serum for a considerable period, varying with the different species but extending in some cases to a year or more.

9. If they disappear from the blood serum a relatively very slight inoculation of the specific micro-organism will result in their abundant reappearance.

10. They may be developed either by progressive inoculations of the living microbes, by larger doses of the dead microbes, or by a combination of the two methods. Such inoculations, as shown by Haffkine, Wright and others, may be employed to produce immunity in man against cholera, plague, typhoid, streptococcus and some other infections.

More might be added, but time will not permit. In closing I will speak of a peculiar phenomenon known as diversion of the complement. If a suspension of bacteria be taken in a normal serum containing sufficient complement to cause bacteriolysis when a known amount of inactivated immune serum is added—i. e., containing a certain quantity of amboceptors—and if inactivated serum containing several times this quantity of amboceptors be added, bacteriolysis, instead of being hastened, is slowed and may be wholly arrested. Several explanations are given for this strange occurrence, but Adami gives the clearest and simplest. He says there is evidently a diversion of comple-

ments—i. e., the unattached amboceptors, which are in excess, have a greater avidity or attraction for the complements than those amboceptors have which have become partially satisfied by attachment to the bacteria or conversely; it may be true that the bacterial receptors have a greater attraction for the uncombined amboceptors, which are in excess, than for the combined amboceptors and complements.

In conclusion, from the practical point of view, that of establishing passive immunity by inoculating immune serum, it is important to know that there is variation in the amount of complements in the individual and that they may undergo reduction in the course of disease and also that the complements in the blood of one animal do not necessarily correspond with those of another and are not so active in the blood of that other animal as are the complements which belong there. Therefore, passive immunity and the destruction of bacteria are not always complete. Mixed immune sera are, therefore, sometimes found more satisfactory than the immune serum of a single animal or species; or, it might be suggested that normal human serum is most likely to afford the right order of complements for human patients, a relatively small amount of serum containing, it is found, sufficient complement to satisfy a large bulk of amboceptors.

In my next paper I will try to review the rest of this difficult but important field of science.

SHEET OF DIRECTIONS GIVEN THE PATIENT AFTER A TONSIL OPERATION, INCLUDING THE TREATMENT OF POSTOPERATIVE HEMORRHAGE.*

EDWIN PYNCHON, M.D.

Professor of Rhinology and Laryngology, Illinois Medical College,

CHICAGO.

Having recently read a paper on the "Treatment of Postoperative Nasal Hemorrhage" at a meeting of the South Branch of the Chicago Medical Society, which was well received, and having just revised my "Sheet of Directions to Patients After a Tonsil Operation," I take the privilege of presenting the same, chiefly owing to the consideration given therein to the treatment of postoperative hemorrhage.

Any persistent or profuse hemorrhage following a tonsil operation is an annoyance to both the operator and patient and may, if not promptly and properly treated, even prove dangerous. The old adage which deals with the truism that "a stitch in time saves nine" applies nowhere more appropriately than in the treatment of tonsillar hemorrhage, for, while in most cases it can be quickly controlled by prompt and efficient treatment, it may otherwise continue, or intermittently recur, much to the patient's discomfort.

* Read at meeting of the Chicago Laryngological and Otological Society, March 9, 1905.

A hemorrhage from the throat or nose generally unnerves the patient more than the loss of an equivalent amount of blood from some other location. Furthermore, owing to free salivation, nausea and even vomiting often thereby induced, the amount of blood lost seems to be greater than it really is.

In order to meet emergencies arising in practice, I have for several years followed the custom of giving the patient from time to time printed sheets of instructions to insure the following of directions and to provide for complications which may occur. In no place is such a sheet of directions of more value than after a tonsil operation as a guide to both diet and treatment, and particularly in order to meet the possible occurrence of postoperative hemorrhage at any time within about eight days following the operation. I herewith append a copy of this particular sheet of directions:

DIRECTIONS TO THE PATIENT AFTER A TONSIL OPERATION.

For the first two or three days avoid all violent exercise or sudden motion. In going up stairs the ascent should be made slowly. Use the voice in moderation and do not attempt to sing or to speak too loud. In order to *avoid stooping* the use of the sniffing medicine may be omitted for the first twenty-four hours after the operation.

During the First Night After the Operation the patient should sleep with the head well elevated by using several pillows or else by putting an inverted chair under the bolster and pillows, the legs of the chair being against the head of the bed, with the back of the chair sloping on a downward incline towards the middle of the bed. A still better way is to rest for the first night in a reclining chair. A large rocking chair, tilted well back, and held in this position by placing a small box or even a bureau drawer under the forward end of the rockers, will also serve admirably. If possible so to do, it is better to avoid sleep for the first night and pass the time by reading an entertaining story.

Use the Soda Gargle every fifteen (15) minutes while awake. It is made by adding a teaspoonful of Merck's bicarbonate of soda to a glass of water, or, what is still better and more agreeable, add the teaspoonful of soda to a 25 per cent. solution of some one of the pleasant vegetable antiseptics, which means one-fourth ($\frac{1}{4}$) glass of the antiseptic selected and three-fourths ($\frac{3}{4}$) glass of water. In place of the soda gargle, some have preferred a weak solution of green castile soap. Sozodont, well diluted, might also be suggested.

As the wound is deep after any operation whereby the tonsil is thoroughly removed, and as such deep wound is often not well cleansed by gargling, there is advised additionally the hourly use of a suitable syringe whereby the wound may be well cleansed with the same solution (the soda gargle). The best form of syringe to employ is a hard rubber one-half ounce postnasal syringe, the several openings of which insure efficiency. By having a mirror in a window, or by a gas jet, the wound can be easily seen, particularly if the tongue is held down with the handle of a tablespoon so the patient can direct the stream with sufficient force

into the wound. In addition to the hourly use of the syringe, the gargle should be used between times every fifteen minutes as directed for the first day or two, and less frequently thereafter during the remainder of the first week.

If the Iron Medicine is prescribed it should be taken as directed immediately after having used the soda gargle. The dose is one-half ($\frac{1}{2}$) teaspoonful to be introduced in the back part of the mouth, avoiding the teeth, and swallowed slowly. Immediately thereafter rinse the forward part of the mouth and the teeth with the soda gargle. Repeat the dose every two hours for two or three days, say at 2, 4, 6, 8, 10 and 12 o'clock. After this use less frequently, say every three or four hours, as directed. Caution. The iron medicine is not to be taken until the day following the operation.

Should there be pain in the ear apply dry heat, which is best done by the use of a Japanese hot-box. After the "feu" is lighted and placed in the box it should be wrapped loosely in a porous cloth, as fly netting or cheese cloth, and tied with tapes over the painful ear. The heat will continue ceaselessly for four or five hours, particularly if two or three "feus" are employed, and the patient can meantime be sleeping. In lieu of the hot-box either a hot water bag, a hot plate wrapped in a towel, or a heated bag of hops, sand or salt may be used. Should either of the latter be selected a pair will be required so one can be in the oven heating while the other is being applied.

A wet pack worn about the neck at night and when in the house will often assist in diminishing the soreness. The pack is made by loosely wringing a towel after having been dipped in ice-cold water. It should then be so folded that it will be about three inches in width and long enough to reach twice about the neck. After applying cover it with a strip of flannel, a dry towel, or, still better, with a strip of thin rubber cloth, as dentist's rubber dam, or oil silk, in order to retain the moisture. When the wet towel becomes warm wring out afresh in cold water and reapply as before, repeating every half hour. In place of the wet pack, if preferred, a bag of heated hops applied about the neck will prove soothing.

Inhaling steam from the spout of a tea-kettle, or from a steam atomizer, three or four times a day, when convenient so to do, will also tend to allay the soreness of the throat.

If constipation occurs take a tablespoonful of epsom salts in water, or else a bottle of the effervescent solution of the citrate of magnesia made ice cold.

After the first week, in place of the soda gargle, use a weak solution of the chlorate of potash, made by dissolving a teaspoonful of the crystals in a glass of water, and gargle with same every half hour or hour. If too strong add more water. Another good gargle is made by adding 10 drops of the tincture of myrrh to two tablespoonfuls of water.

Abstain from all alcoholic drinks, tobacco and highly spiced or hot foods.

For the first day or two after the operation depend chiefly upon milk and cream taken ice cold. If drawn through a straw or glass tube the swallowing will be easier. Ice cream is also recommended. Malted milk (taken in accordance with the printed directions upon the container) will be found to be a most excellent food. Kumiyyss or matzoon might also be suggested.

After the first day or two oatmeal in cream, cornmeal mush, eold soups, bread and milk, milk toast, raw or soft boiled eggs, tapioca pudding, corn starch and cup custard may be eaten. Raw oysters, when in season, may be taken, the smaller size as blue points being preferable, each oyster being cut in two or three pieces, which can be easily swallowed. Ralston health food deserves particular mention as a food easily eaten and highly nutritious. The same may be said of currant jelly. Usually by the fifth day, and sometimes earlier, the throat has sufficiently improved to permit of indulgence in a more liberal diet, though solid foods had better not be taken until after the first week. By the eighth or ninth day the throat will have sufficiently healed so anything can be eaten as usual.

During the first few days, while the throat is sore, it may be found to be easier to swallow if the tongue is pressed firmly against the front teeth of the upper jaw, while the head is thrown well back. Sometimes better results are attained by pressing the tongue against the lower front teeth and taking liquid from a spoon introduced well back in the mouth, the head, meantime, being tipped backward as before.

HEMORRHAGE.

In case of bleeding after operation, discontinue regular medicines until bleeding is controlled, and gargle continuously with very cold ice water, made by adding a little water to a glassful of pounded ice. To this may be added either a little lemon juice or vinegar, or, still better, a teaspoonful of powdered alum. A small piece of ice held in the back part of the mouth is often of value. The same may be said of an ice bag applied about the neck. Ice used as suggested will generally prove efficient. Should the ice gargle not control the bleeding, then take this paper to the nearest druggist and have compounded the following prescription:

R. Acid Gallie	5i
Acid Tannic	5iii
M. et ft pulv.	

Directions: Put a tablespoonful of the powder in a glass and add a tablespoonful of water, stirring until mixed. Dose, one-half teaspoonful swallowed slowly and repeated every one or two minutes. A little of this mixture may also be added to the alum gargle, which should be used during the intervals between the doses of the gallo-tannic acid mixture. If, after this, the bleeding should still continue, call in a near-by physician and give him this sheet of directions. In such case I would respectfully make the following suggestions:

Hemorrhage after a tonsil operation is most likely to occur within the first six or twelve hours after operation, and when local anesthesia has been employed is owing to paralysis of the muscular coat of the bleeding vessels so they can not contract as they normally would. This paralysis is due to the after effect of the cocaine. The hemorrhage will generally be found to be capillary and to be from the entire surface of the wound.

Fainting generally causes a cessation of hemorrhage; therefore the patient should be kept standing with head erect and meantime instructed to take long and deep breaths. If, furthermore, the arms are elevated above the head the blood pressure is diminished. As this position becomes tiresome the clasped hands may be held upon the head. See that the neck is not constricted—a tight collar, for example, should be removed. Ergotole used hypodermically is of great value.

R. Ergotole (S. & D.) ʒii

S. Inject hypodermically minims xx, repeating same dose in fifteen minutes, and even again in another fifteen minutes if required. Three doses are usually sufficient so the desired effect is produced, or toxic symptoms manifested, as syncope and nausea, which depress the heart's action and, as above stated, tend to control the hemorrhage. *Aseptic ergot* may be used in the same manner.

One hypodermic of morphin, preferably a maximum dose, is to be particularly recommended in lieu of the ergotole in case the latter is not at hand. Norwood's tincture veratrum viride, administered hypodermically (say 5 or 10 minims), has been employed successfully, it being like morphin a cardiac depressant and, furthermore, causes nausea. The relaxation from vomiting will often prove effective. With this object the hypodermic administration of 1/10 grain of apomorphin has been employed. Bosworth recommends an emetic of zinci sulphas. As cardiac depressants and relaxing agents are chiefly indicated, it becomes apparent that alcohol in any form is to be avoided, as are also hypodermics of strychnia, atropia, etc.

Astringents applied directly to the bleeding area are often effective. The wound should be packed with gauze medicated with the astringent selected. For patent reasons one end of the gauze should be secured outside of the mouth. The following astringents might be suggested.

A. A paste made by adding powdered tannin to a 20 per cent. solution of antipyrin.

B. Powdered permanganate of potash made in a paste by the addition of 4 per cent. of vaselin.

C. R. Tr. benzoin comp., ʒi; iodoform, ʒi. M.

D. Styptic collodion, which is a combination of collodion, alcohol and tannin.

E. Turpentine.

Adrenalin 1-1000 would naturally occur to one as a proper agent to employ. In my experience it has proven more efficient in preventing hemorrhage than in stopping it after it has begun. In its use there is also the danger of recurrence owing to its secondary effect. If employed

at all it should be used, as are the other astringents, by packing the wound with gauze saturated therewith, in which case due credit must be given to the gauze packing, as tonsillar hemorrhages are often controlled by simply packing the wound with unmedicated gauze.

Monse's solution is not to be recommended for different reasons. As usually employed, by applying it to the wound with a swab, a coating is formed, under which the hemorrhage continues, the blood meantime being swallowed. Furthermore, after its use, the wound heals more slowly, hence my preference is for other methods of treatment. It may, however, be effective if gauze moistened therewith is tightly packed into the wound, though, as before stated, due credit must be given to the packing of gauze regardless of the astringent employed. If for any reason iron is used it must not be applied while there is present any tannin or an inky precipitate will form. The value of ferropyrin has been highly extolled. It is a dry powder, consisting of equal parts of the chlorid of iron and antipyrin. It is applied to the bleeding area upon gauze, and in case of tonsillar hemorrhage would be packed into the wound. Owing to previously mentioned statements other methods of treatment are to be preferred.

Peroxid of hydrogen is another agent of use for the control of hemorrhage, though it is of but little value in tonsillar hemorrhage. If used as a gargle an immense amount of froth is produced, under which the bleeding continues, and the froth may prove a danger if aspirated in the lungs. The only advisable method of use would be to pack the wound with gauze moistened therewith, in which case the unmedicated gauze would prove nearly, if not quite, as effective.

The hot water douche, which is so efficient in controlling surgical hemorrhage generally, might be employed. In such case no good can be expected unless the water is absolutely as hot as can be borne (about 130° Fahr.), and the stream must be intermittently applied directly in the wound by means of a fountain syringe with a long tube, as a metal catheter, the patient meantime holding the breath and leaning well forward. Having the water acidulated with vinegar would probably increase its efficiency. On the whole, it is not to be recommended in the treatment of tonsillar hemorrhage, and is only mentioned as a substitute for other treatment in emergency should there not be available other agents required.

A strong solution of nitrate of silver, say, 20 or 25 per cent., is one of the best applications for the *prevention* of hemorrhage after a "cautery dissection" operation by coagulating the albuminous element of the tissue and thus forming a dense coating, but, *after* a hemorrhage has begun the exuding blood dilutes it and washes it away so as to prevent its acting as it does when applied to a bloodless wound. It, furthermore, finds its way to the larynx and is thus distressing to the patient.

Continuous pressure, efficiently applied, will probably control any secondary tonsillar hemorrhage to be met with, and is the most practical and surgical method of treating hemorrhage of this kind. This can be done with the thumb, it first being wrapped with gauze. There

are special instruments devised for this purpose (Fig. 1), though any instrument shaped like a placental forceps, or even a small pair of tongs, can be substituted, both points being wrapped with gauze or muslin, and continuous pressure made therewith. Strong pressure applied externally with the thumb on the carotid might also be tried.

Should it be possible by inspection to recognize a bleeding vessel it should be grasped with an artery forceps and torsion applied, though, as before stated, bleeding from a tonsil wound is most often of an oozing

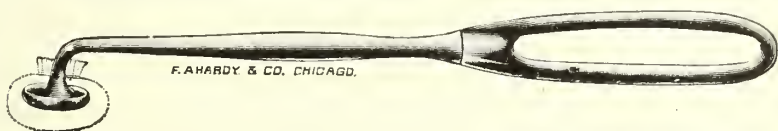


Fig. 1.—Writer's tonsil presser ($\frac{1}{2}$ size).

character and seems to come from the entire surface of the wound. As continuous pressure applied by the hand becomes tiresome to the physician and very annoying to the patient, it is better to employ, if available, a tonsil hemostat, one form being shown in Fig. 2.

In any case where there has been a considerable loss of blood certain methods of systemic treatment should be employed.

Bandaging each limb near the trunk will diminish the amount of blood in circulation. If this is done one bandage at a time should be released, so the circulation of the limb will not be too long obstructed. In this way three limbs can be kept distended with blood.

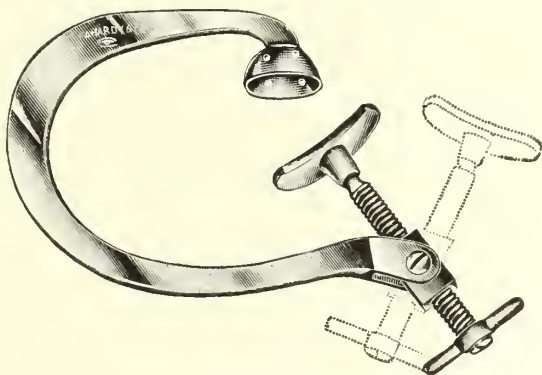


Fig. 2.—Writer's Tonsil Hemostat ($\frac{1}{2}$ size).

Chlorid of calcium given by mouth or rectum in doses of ten grains, dissolved in two ounces of water and repeated hourly for three doses, has been employed with benefit in case of persistent and oozing hemorrhage. After the third dose it should be discontinued for a few hours before being again used. Forty to 60 grains in 24 hours is regarded as the maximum dose as an anti-hemorrhagic. The lactate of calcium has also been advised, a single dose of 30 grains in water being given.

Hypodermatoeclysis. Should the hemorrhage have been very severe it is advisable to administer a subcutaneous injection of normal saline fluid into the cellular tissue at the most favorable point, or else, as an alternate, a full enema ($\frac{1}{2}$ gallon or more) of the same fluid may be employed.

193 State Street.

EARLY IMMUNIZATION. THE ESSENTIAL FUNCTION OF THE TONSIL.*

R. H. GOOD, M.D.

Professor of Oto-Laryngology, Chicago College of Medicine and Surgery.

CHICAGO, ILL.

One of the greatest problems under consideration at the present time by workers along the lines of scientific physiology, pathology and therapeutics is that of immunity, and I purpose in this paper to show the part the tonsil takes in establishing this condition.

As late as 1907 one of the leading men in the profession, George Bacon Wood, states that "the real reason for the existence of the tonsil has not yet been explained." The tonsil is so located that it is exposed to bacteria coming to it by way of the nose, mouth, lungs and stomach. Every mouthful of food loaded with microorganisms is rushed by the tonsil in the act of swallowing. The secretions from the nose are carried toward the tonsillar crypts by the cilia, as demonstrated by Jonathan Wright. The secretions from the lungs are coughed or carried by the cilia directly toward the tonsils. So in the act of vomiting, which is frequent in infants, the contents of the stomach are brought directly in contact with the tonsils. From these facts one is led to believe that the tonsil must have an important function or else it would not be placed where it is exposed to infection.

The tonsil in the embryo does not develop until the fourth or fifth month, so that we may conclude, first, that, whatever be the function of the tonsil, it has not functionated prior to this period, and, second, that it can not have a vital embryonal function or else it would develop earlier in fetal life. At birth the tonsil is fully developed, having matured histological structures and therefore able to perform its function. That the tonsil functionates early in life is suggested, first, by the fact that when tonsils are enucleated after about three years of age the system knows no loss; second, the tonsil, like adenoids, in healthy children who have had no attacks of tonsillitis, has a tendency to atrophy or decrease in size from the third or fourth year to puberty.

Many theoretical functions have been ascribed to the tonsil. Spicer thought it eliminated certain elements from the system, which, however, proved to be false by chemical analysis of the contents of the crypt.

* Read before the Chicago Laryngological Society, March 9, 1909.

* Dr. Orndorff, who is associated with me in this work, read a paper before the Porter Medical Society, Dec. 3, 1907, entitled Prophylaxis the Essential Function of the Tonsil.

Massini advanced the theory that the tonsil furnished an internal secretion like that of the ductless glands. None of the histological tissues in the tonsil could produce secretions like those found in the ductless glands. Fox considered the tonsil as having the property of absorbing salivary digestion. Gulland gave the tonsil a bactericidal function—namely, that of destroying bacteria which enter the alimentary tract by way of the mouth. The only material in the crypts having this power is the salivary corpuscle, and we know that the great number of bacteria entering the system by way of the mouth are many times more than could possibly be destroyed by the salivary corpuscles. Furthermore, nearly all bacteria, when entering the stomach, lose their pathogenic potency.

George Bacon Wood has very elaborate drawings with which he attempts to show that the stratified epithelial cells at the bottom of the crypts are transformed into leucocytes and considers the tonsil primogenial source of leucocytes. This would overthrow all of our views that the leucocytes have their origin from the original mesoblastic elements.

Notwithstanding the hopeless foundation for the above mentioned theories, there are some facts which have been demonstrated that serve as a basis for logical conclusions. For example, Goodale noted, first, that salivary corpuscles possessed phagocytic properties; second, that the lymph currents promoted by the ciliated epithelium of the oronasal cavities converge toward the region of the tonsil; third, that this lymph passes into the cervical lymphatics through the tonsils. Wright noted that foreign particles, such as earmine granules, oil globules, etc., pass with the lymph current through the cryptal epithelium into the tonsil and that living bacteria remain in the crypts. With these established facts in mind we are in a position to understand clearly the function of immunity performed by the tonsil.

Immunity may be defined as that which prevents the gaining of a foothold by disease germs into the body, or that which neutralizes their harmful products or destroys the organisms. However, immunity is only relative, and whether an individual suffering from the disease after the germs have been introduced into his system depends on two factors—the pathogenic potency of the germs and the vital resistance of the individual. For example, a fowl, under ordinary conditions or normal conditions, is immune to inoculations under the germs of tetanus, yet if the chicken be compelled to remain in a refrigerator and stand on a piece of ice for a time, it becomes susceptible to inoculations of tetanus and dies. An organism may possess an inherent immunity, as in the case of the fowl to tetanus or man to certain diseases affecting animals. This form of immunity is theoretically interesting but practically valueless.

It is the acquired immunities which are of interest to us in the functions of the tonsils. There are two forms, natural acquired immunity and artificially acquired immunity. Natural acquired immunity is immunity established by the natural forces of the tissues of the body when disease organisms exist for a time within the individual, giving their

products to its system. This is exemplified in such diseases as tonsillitis, diphtheria, measles, etc. Artificially acquired immunity or artificial immunity is induced by the inoculation with live germs causing the disease, or by the injection of the products of the organism. This product may be found in fluid media after extraction from the bacterial body, or it may be inherent to the bacterial body, in which case the organisms are thoroughly sterilized before injection. Any material used to induce this immunity by inoculation or injection may be known as vaccine. A *vaccine* may be defined as any substance of bacterial origin which, when taken into the body fluids, is capable of inciting an elaboration of protective substances. Protective substances or antibodies are certain specific substances with antagonistic properties in the body fluids which aid the bodily resistance by one of two forces or both—mechanical, as phagocytosis, or opsonic power and chemico-physiological, as agglutination and bacteriolysis. All these powers may be present in the resistive manifestations in equal or varying degrees, or one or more may be totally absent.

Agglutination is the process brought about by the union of the bacterial product known as *agglutigen* with the substance normally present in the body known as *agglutinin*, and is manifested by the power of causing evenly distributed bacteria to clump together—in other words, become paralyzed, as is the case in typhoid fever.

Bacteriolysis is the process by which the resistive elements of the tissue brings about a disintegration or lysis of the bacteria.

Opsonic power is the ability the fluids of the body possess in preparing pyogenic bacteria for the process of phagocytosis.

Phagocytosis consists of the destruction of bacteria by a phagocyte, subsequent to preparation of the bacteria by the opsonins.

A *phagocyte* is any cell which has the power to take within itself a foreign substance and destroy it. It may destroy the substance (bacteria) by a sort of digestive process, or it may, after taking within itself a large amount of foreign material, give itself to the excretory tracts, and thus destroy the substance and itself.

Opsonins are substances distributed throughout the body fluids and are produced as a result of a reaction on the part of the fixed tissue cells to irritation from bacterial substances. They alter the resistance of or prepare the bacteria so that the phagocytes have the power to ingest them.

Artificially acquired immunity may be established in two ways:

1. By injecting bacteria or their products into an individual whose fixed tissue cells will respond with the formation of protective substances or antibodies. These protective substances aid the bodily resistance by neutralizing the bacterial products or by destroying the bacteria themselves. These protective substances may remain potential for months or years, thus rendering a temporary if not permanent immunity. When immunity is secured in this manner by the sole activity of the cells of the individual affected it is termed *active immunity*.

2. If the serum of actively immunized animal be obtained and injected with its protective substances into a second animal an immunity is established without the cellular activity necessary in active immunization. This process is termed *passive immunity*.

If the serum used in the production of passive immunity only contains the property of neutralizing the toxic products of the infecting bacteria it is known as *antitoxic passive immunity*. It will be observed that the bacteria against which an antitoxic immunity may be established give off their poisonous substances while alive. The immune sera so produced is known as *antitoxic serum*, and is represented by such serums as antidiphtheritic, tetanic, and the antitoxic serums of botulism. It is also observed that some bacteria give off a toxin after they are killed and are undergoing disintegration. A serum introduced in passive immunity which destroys the organisms is known as an *antimicrobial serum*. This explains the toxemia following the introduction of antimicrobial serums. Almost all serums on the market are antimicrobial,

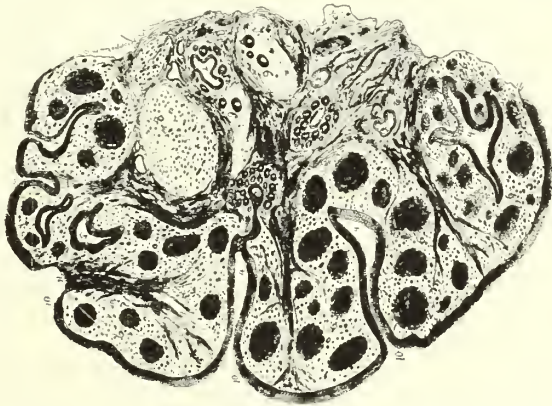


Fig. 1.—1, peritonsillar mucous glands; 2, ducts of mucous glands opening into crypts; 3, stomata; 4, crypts; 5, lymph follicles; 6, interfollicular tissue containing lymphocytes and polymorphonuclear leucocytes; 7, connective tissue; 8, diseased lymph follicles; 9, diseased peritonsillar gland; 10, epithelium; 11, diseased epithelium.

except those mentioned above. All immunities, except inherent immunity, may be produced through tonsil by any of the processes above described. Natural acquired immunity is brought about by acute inflammatory processes in the tonsil. Artificially acquired immunity is produced by the process of bacteriolysis, agglutination or opsonic power in the crypts of the tonsils.

The location of the tonsil is such that the bacteria entering the oro nasal cavity, from the day of birth, are directed toward the tonsillar crypts. The crypts are lined with stratified epithelium (not columnar) so that they are simply receptacles or culture tubes in which bacteria of every variety entering the fauces may be cultivated. The mucus in the crypts serves as the culture medium. The bacteria remains in the crypts, not because the cryptic epithelium has a special selective power, as claimed by Wright, but because, being living organisms, they select the

mucus in the crypts in preference to going along with the lymph current underneath the epithelium, as is the case with dust particles. The glands which furnish this culture mucous in the crypts are located just outside the tonsillar structure. (Fig. 1.)

Dr. Orndoff has named these glands peritonsillar mucous glands. The glands are compound racemose mucous glands situated around the tonsil in the region of the capsule and its trabeculae. They are found in all tonsils enucleated and they are most numerous at the base of the tonsil near the bottom of the crypts. These glands have ducts which empty into the crypts. This explains how peritonsillar abscesses at times follows follicular tonsillitis. The bacteria multiplying in the crypts give off products called vaccines, which are taken into the tonsil by the lymph current and thence into the entire system, where they come in contact with the fixed tissue cells, which in turn have the power of producing antibodies, such as opsonins, agglutinins, etc., which, as described above, produce immunity.

We must now describe how the bacteria are removed from the crypts after they have fulfilled their part of immunization. There is neither fight or affinity between the salivary corpuscles and any particular bacteria so long as the body is not immunized against these bacteria. To illustrate, pyogenic bacteria entering a crypt of an infant just born will thrive there unmolested by leucocytes until its vaccines, absorbed into the system, cause the tissue cells to produce opsonins, which come into the crypts with the lymph and prepare the pyogenic bacteria for phagocytosis. The salivary corpuscles now grab the bacteria and together they are forced out into the oral cavity in the act of swallowing. This process of leaving bacteria in the crypts just long enough to establish immunity and then be carried out by phagocytes produces what has been termed by Dr. Orndoff "tonsillar equilibrium." In the act of deglutition the superior constrictor muscles compress the peritonsillar glands and force the mucus into the crypts, and this same force or pressure forces the contents of the crypts into the oral cavity. The tonsil with its crypts makes it possible for the system to gradually absorb the vaccines from the crypts and thus produce immunity without systemic toxemia such as we have with acute infections.

The interfollicular tissue is composed of interlacing stellate connective tissue cells, whose spaces are filled with lymphocytes and polynuclear leukocytes: thus a tissue is arranged which offers every protection to the general lymphatic system from the insoluble particles (foreign bodies) which pass through the cryptal epithelium. We will thus see that the real physiological phenomena found by Goodale, Wood, Wright and others are all required in the process of immunization as brought about through the tonsil.

If the body needs to be immunized to ward off or prevent the invasion of bacteria it stands to reason that the time when this function is mostly needed is when the infant is first exposed to these bacteria. That the child of one year of age is not thoroughly immunized as yet is indicated by the fact that the fatality of infants attacked with pneumonia.

diphtheria, scarlet fever, etc., is much higher than later in life. Though the normal tonsil probably functionates until puberty or later, we are nevertheless forced to believe that the time when it is mostly needed is immediately after birth, up to the third or fourth year. That the tonsils are not absolutely needed after this period is shown by the fact that when they are enucleated the system knows no appreciable loss. That the remainder of Waldyer's lymphatic ring may take up this function of the tonsil is quite probable, in other words, that the function of Waldyer's lymphatic ring is probably that of early immunization.

The practical conclusions are, first, that in children under two or three years of age the tonsil, when removed, should not be completely taken out; second, that only diseased tonsils should be enucleated, and, third, when a tonsil has become pathological its function is altered so as to make it possible to become a portal for systemic infection.

BIBLIOGRAPHY.

- Special Article on Immunity, *Journal A. M. A.*, 1905.
 Immunization and Immunity, *Adam's Pathology*, 1908.
 Infection and Immunity, *Keen's Surgery*, Vol. 1, 1906.
 Immune Sera, C. F. Bolduan, M.D., M.Y., 1907.
 Vaccine Therapy, and the Opsonic Method of Treatment, R. W. Allen, M.D., London, England, 1908.
 Bier's Hyperemic Treatment and Vaccine Therapy, *Surg., Gyn. and Obstet.*, December, 1906, J. C. Hollister.
 Nothnagel System of Medicine, Vol. on Tuberculosis, p. 123.
 Osler's System of Medicine, Vol. 4, p. 808; Vol. 3, p. 596.
 Spicer: *Lancet*, ii, p. 805, 1888.
 Massini: *N. Y. Medical Journal*, Sept. 23, 1898.
 Fox: *Jour. of Anat. and Phys.*, 1885-6, xx, p. 559.
 Gulland: *Edinburgh Med. Jour.*, July, 1891.
 Wood: *Univ. of Penna. Med. Bull.*, October, 1904, p. 246.
 Goodale: *Boston Med. and Surg. Jour.*, civ, p. 278.
 Wright: *N. Y. Med. Jour.*, Feb. 16, 1907, Jan. 6, 1906, Jan. 20, 1906.

COMPARATIVE RESULTS IN THE TREATMENT OF GONORRHEA IN YOUNG GIRLS.*

[From the Laboratory of Dr. L. L. McArthur and Dr. Jo'm C. Hollister.]

RUTH VAIL, S.B., M.D. MARY C. LINCOLN, PH.B., M.D.
 CHICAGO.

For the study of the comparative value of vaccine, serum and general hospital or local treatment we have had under our observation during the last thirteen months 65 cases of chronic gonorrhea in young girls, of ages ranging from 12 to 18 years. Forty of these patients have been observed for one year; the remaining thirty have been added during the year. We have divided them into 6 classes, according to treatment, endeavoring to keep 10 in each class. Twenty-two cases, before coming under our observation, had received previous treatment for from 2 months to 2 years, and we have endeavored to place an equal number of these previously treated cases in each of the 6 classes mentioned. The cases were also classified according to pelvic findings and as nearly similar cases as possible placed in each group.

* Read before the Chicago Medical Society, March 24, 1909.

Class 1 includes those patients receiving gonococcus vaccine only.

Class 2 received the gonococcus vaccine plus local treatment twice a week, which consisted in thoroughly wiping away with dry cotton all secretions from the cervix and vaginal vault and then swabbing these parts with pure ichthyol.

Class 3 received the ichthyol treatment alone.

Class 4 were treated once daily with a low pressure normal salt douche, and once a day the discharge was thoroughly swabbed from the vaginal vault and cervical os with normal salt sponges.

Class 5 received antigonococcus serum alone.

Class 6 were swabbed vaginally twice a week with a 4 per cent. silver nitrate solution and the urethritis cases received injections of 2 per cent. argyrol as the case demanded.

In every case in the six groups the external genitals were washed three times a day with normal salt. In classes 1 and 2 we used a stock vaccine prepared in the laboratory of Drs. McArthur and Hollister. The uniform dosage of 25 million was administered once a week. In class 5 each patient received three times a week one cubic centimeter of antigonococcus serum, very kindly furnished us by the Experimental Department of Parke, Davis & Co. The vaccine has shown an occasional slight local reaction. The serum has several times given a rather severe local reaction which cleared up in two or three days. We have observed no general reaction in any case.

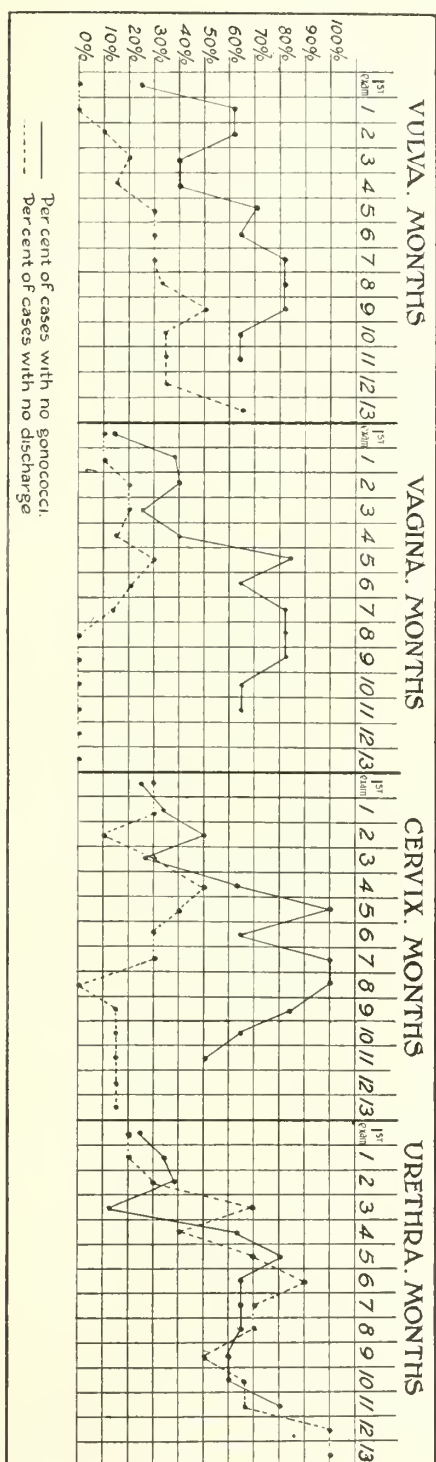
Each patient has had a pelvic examination every three to six weeks, with occasional exceptions, due to age, menstrual period, etc. Each of these examinations has been made by two and sometimes three observers—namely, Dr. Hollister, Dr. Lincoln, Dr. Wieland and myself. At each examination smears were made from four regions, the vulva, vaginal vault, cervix and urethra. Gonococci were identified microscopically in the smears from every patient. In many of the smears the gonococcus was the predominating or sole organism. In many others the luxuriant flora made an hour's study not infrequently necessary to find a few leucocytes packed with typical, bean shaped, Gram negative diplococci.

It is our purpose to present to you here comparative results in the treatment of the six classes described. The findings in all the cases of the six groups have been tabulated in detail and per cents. calculated in order to answer the following questions:

1. What group shows the greatest per cent. of cases in which the gonococci disappear?
2. What group shows the largest per cent. of cases in which the discharge disappears?
3. What region—vulva, vaginal vault, cervix, urethra—was most frequently involved when first examined, and from which part do the gonococci first disappear?
4. What region—vulva, vagina, cervix, urethra—had the greatest discharge when first examined, and from which of these regions does the discharge first disappear?

GROUP I. TREATED WITH GONOCOCCUS VACCINE

CURVES SHOWING THE COMPARISON BETWEEN THE PER CENTS. OF CASES WITH NO GONOCOCCI AND PER CENTS. OF CASES WITH NO DISCHARGE



1. Note the great fluctuation in the disappearance of the gonococci in all the regions, and the slight fluctuation in the disappearance of the discharge.
2. Note the large per cent of cases with no gonococci, but with discharge still present
3. Note that the curves of the disappearance of the gonococci and of the discharge run parallel in the case of the urethra.

5. Which group shows the greatest number of cases in which thickened tubes, cervical erosions and pelvic adhesions disappear?

(a) As to the first question: What group shows the greatest per cent. of cases in which the gonococci first disappear?

The gonococci disappear according to the following order of groups:

1. Vaccine.
2. Antigonococcus serum.
3. Vaccine plus ichthyol, and ichthyol alone, rank the same.
4. Normal salt.
5. Silver nitrate.

(b) The disappearance of the discharge in the different classes does not run parallel with the disappearance of the gonococci in the same class. The discharge clears up according to the following order of groups

1. Ichthyol.
2. Antigonococcus serum.
3. Vaccine.
4. Vaccine plus ichthyol.
5. Normal salt.
6. Silver nitrate.

The relation between the clearing up of the gonococci and the clearing up of the discharge is a fluctuating one in each class. We have made charts to illustrate this relation.

Note the vaccine class as an example. There is a comparatively slight fluctuation in the curve which graphically portrays the presence or absence of the discharge from month to month. On the other hand, the curve showing the disappearance of the gonococci is very fluctuating; at one examination these diplococci have disappeared, at another they have reappeared. These two curves representing the disappearance of gonococci and the discharge show a more parallel relation to each other in portraying the findings in the vulva and urethra than in the vaginal vault and the cervix. In the urethra the discharge and the gonococci disappear almost simultaneously. This is approximately true in the vulvar region, while the findings in the vaginal and cervical regions are very different. For example, at the end of the eight month 100 per cent. showed a thick, glairy discharge coming from the cervix and in not one of these cases were gonococci demonstrable in the smears at that time. In the following month 85 per cent. showed a cervical discharge, while in only 15 per cent. of these cases were gonococci found. We would like to add here that in a considerable number of cases where the vulva and urethra were perfectly clean, both as to discharge and gonococci, gonococci were found in smears from the cervix.

(c) Now, as to the third question, what region—vulva, vagina, cervix, urethra—was most frequently involved when first examined, and from which part do the gonococci first disappear? Our tables give us the following findings:

When first examined the region showing gonococci in the greatest per cent. of cases was: First, the vulva; second, the cervix; third, the

urethra, and last, the vagina. Of how much value then is a vaginal smear in the diagnosis of gonorrhea? The order in which the gonococci cleared up was: First, in the vagina; second, vulva; third, urethra; fourth, cervix; the cervix showing a considerably greater chronicity.

(d) The region showing mostly frequently the presence of a discharge on first examination and the order of disappearance is almost opposite to the finding of gonococci. Of how much value, then, is the presence of a discharge in the diagnosis of gonorrhea? The order of regions most frequently showing a discharge was as follows: First, vagina; second, vulva; third, urethra; fourth, cervix; while the order in which they cleared up was: First, urethra; second, vulva; third, cervix, fourth, vagina.

(e) Lastly, which group shows the greatest number of cases in which thickened tubes, cervical erosions, and pelvic adhesions disappear? Such findings would be of greater value at the end of two or three years than at the end of one year. At the present date the order of improvement is as follows: The groups showing the greatest improvement in cases of salpingitis are: First, vaccine plus ichthyol local treatment; second, vaccine; third, serum; fourth, ichthyol; fifth, normal salt; sixth, silver nitrate. Cervical erosions disappear in a greater per cent. of cases treated with vaccine plus ichthyol alone. The serum and the ichthyol alone give an equal percentage of cases showing disappearance of cervical erosions. Pelvic adhesions show greatest improvement in: First, the vaccine plus ichthyol cases; second, serum; third, vaccine alone; fourth, ichthyol alone; fifth, normal salt; sixth, silver nitrate. Therefore the pelvic findings in general show a greater percentage of improvement in the cases treated with the vaccine plus ichthyol. Vaccine alone and serum give approximately equal results. Ichthyol alone comes next in value, while silver nitrate comes last.

CONCLUSIONS.

1. In summarizing the improvement as to the disappearance of gonococci, the clearing up of discharge, and the improvement in pelvic findings the vaccine and serum cases tally in the number of points of value, the vaccine alone and vaccine plus ichthyol give results of approximately equal value, while the silver nitrate cases come last:

2. The advantages of the vaccine are:

- (a) The volume of the dosage is very small, only one-fourth of that of the serum; hence there is practically never any local reaction.

- (b) The interval between the injections is three times as long as the interval between the injections of the serum.

- (c) The preparation of the vaccine is very much simpler than that of the serum. It can be prepared in any well equipped laboratory, while the preparation of the serum necessitates the immunizing of animals. The greater frequency of the dosage of serum and its more difficult preparation make the serum treatment considerably more expensive than that of the vaccine.

3. The examination of smears made from the cervix, when possible, as well as from the vulva, vagina and urethra, is of vital importance in the diagnosis of gonorrhea in many cases.

4. The absence of vulvo-vaginal discharge by no means rules out the diagnosis of gonorrhea.

THE DIAGNOSIS OF SYPHILITIC EYE LESIONS BY MEANS OF THE SPIROCHLETA PALLIDA AND THE SERUM REACTION OF WASSERMANN.*

B. C. CORBUS, M.D.

CHICAGO.

With the demonstration of Metschnikoff and Roux in 1903 that the higher apes could be inoculated with syphilis, it immediately became apparent that here, at last, we had an additional way of studying this universal disease. These observers showed that the chimpanzee was the most easily inoculated and that this susceptibility decreased as one descended in the scale of the monkey kingdom until the ordinary ring-tailed monkey could only be inoculated in certain selected areas, notably the eyebrow, and, further, that the rabbit, dog and sheep could also be inoculated in certain selected areas, but the disease in these animals was not followed by any secondary manifestations.

Stimulated by the work of Metschnikoff, Roux and Siegel, Schaudinn and Hoffmann set to work to discover, if possible, the cause of syphilis, and in 1905 announced to the world the *Spirochæta pallida* as the etiologic factor of syphilis. We are willing to admit that methods of cultivating this organism up to the present time have not been successful, but inoculation and reinoculations have been carried on through 42 consecutive monkeys and, further, the anterior chamber of an eye² of a rabbit has been inoculated with the spirochete and from here monkeys have been inoculated and the organisms reclaimed from this source. With these investigations comes an enlightenment in the pathology of syphilis.

The initial lesion, no matter where situated, whether genital or extra-genital, represents the first known collection of spirochetes. After a certain period, varying from 2 to 4 weeks, these organisms leave the local focus and advance throughout the host. Systemic invasion has taken place, and the manifestations of the secondary lesions, whether cutaneous or visceral, are all characterized by collections of spirochetes. This is equally true of the tertiary lesions, so we see that the organism itself is directly responsible for the pathological changes. With this knowledge our next most important step is to get rid of this organism

* Read before the March meeting of the Chicago Ophthalmological Society.

1. Arbeiten aus dem Kaiserlichen Gesundheitsamte. Band xxii. Heft 2. April 10, 1905.

2. Wien. klin. Wchnschr., No. 24. 1906, page 726.

by commencing treatment before it has invaded the system. With the discovery of the spirochete came its demonstration with the staining method, which at first was more or less successful in skilled hands, but the demand for a simpler and more reliable method led Reichert, the instrument maker of Vienna, to reintroduce the dark ground illuminator. Here we have a method which is extremely simple, the technic of which can be mastered by the average physician.

During the past 18 months we have examined some 200 cases. These have been confined to primary lesions on the penis, hands and lips, and secondary lesions, comprising condylomata, mucous patches, papules and enlarged inguinal glands. In looking over Alfred Fournier's collection of 647 chancres of extragenital origin we find only 7 cases of chancre of the eye lid, or a little over 1 per cent. He adds, however, that chancres of this origin are frequently unrecognized, which may account in a measure for the small per cent. With our present methods of diagnosis it should not be difficult to diagnose these conditions.

Numerous English and American ophthalmologists lay considerable stress on the fact that the spirochetes are found in apparently healthy eyes of fetuses and infants who have died from congenital syphilis. This is not at all surprising when we realize that the fetal circulation is fairly alive with the organisms and that they are easily demonstrated in every organ, particularly in those organs where there is an abundant blood supply, as, for example, the choroid coat of the eye. Zur Nedden³ demonstrated the *spirochata pallida* in the aqueous humor of a case of acute syphilitic iritis. Stephenson⁴ found the spirochete in the aqueous humor of a woman with secondary syphilis. For obtaining the spirochete in this class of cases these men recommend the puncture of the anterior chamber. In the light of our modern investigations the Wassermann test replaces this procedure. Kowalewski⁵ reports a case of an individual who was treated for an inflammation of both eyes. Suddenly he developed an ulcer of the lower left eyelid in which spirochetes were found. This was controlled by the Wassermann reaction, which was positive. Hanford McKee⁶ reports the finding of the spirochete in a mucous patch on the palpebral conjunctiva of a woman suffering from secondary lues.

Spirochetes have been found in keratomalacia by numerous observers.⁷ Some of these cases were of doubtful syphilitic origin, as spirochetes are found in all cases of gangrene. It is questionable whether these were the *Spirochata pallida*. From the preceding we would be led to presume that primary and secondary lesions of the eye are extremely rare. This in a measure is true, but it is highly probable that these conditions have been overlooked on account of insufficient means for diagnosis.

3. Ber. d. ophth. Gesellsch., Heidelberg, 1906, page 215.

4. Ophthalmoscope, June 1, 1907, page 303.

5. Klin. Monatsbl. f. Augenh., 1905, Band 11, page 489.

6. Ophth. Rec., Feb. 27, 1909, page 63.

7. Ophthalmoscope, June 1, 1907, page 303.

With the aid of the dark ground illuminator we have a rapid, reliable and simple method of differentiating these ulcers, and as a further means of diagnosing syphilitic eye lesions we have the serum test of Wassermann, Neisser and Bruck.⁸ The Wassermann test depends on the discovery of Bordet and Gengou, which is as follows: That bacteria or their extracts will unite with their corresponding antibodies by means of complement and *fix it*.

For the performance of this five factors are necessary. Namely: 1. Antigen. 2. Complement. 3. Antibody. 4. Amboceptor. 5. Red cells.

1. *Antigens*.—Antigens are substances which, when injected into an organism, cause the formation of corresponding antibodies. These are usually prepared from the bacteria themselves. Example—auto-vaccines. On account of our inability to grow the spirochetes we use a 10 per cent. alcoholic extract of the liver of a syphilitic new born.

2. *Complement*.—Complement is present in all sera. What it is we do not definitely know. It is destroyed by heating to 56 degrees centigrade for one-half hour. For convenience it is obtained from guinea-pig blood, either from the heart or by slaughtering the animal. It is not necessary to have this sera sterile. The blood should be collected in glass retainers and the sera pipetted off as soon as the clot is separated. As this is very unstable, it should be put at once on the ice.

3. *Antibody*.—Antibodies are present in all syphilitic sera, provided the disease is still active. This is best obtained by withdrawing under strict aseptic conditions 2 to 5 cubic centimeters of blood from the medium basilic vein, allowing the blood to clot. Pipette off the sera, inactivate $\frac{1}{2}$ hour at 56 degrees centigrade to remove the complement, put on ice until ready to make the test.

4. *Amboceptor*.—Amboceptor is an antibody. It is prepared by injecting into a rabbit the washed red cells (antigen) of freshly defibrinated sheep's blood. This is repeated about every 5 days for several weeks until the rabbit's serum has the power of laking red cells, 2 to 4 c.c. of the red cells being injected each time. When the rabbit has become sensitized sufficiently the animal is either slaughtered or the heart punctured and the blood collected in sterile retainers under strict aseptic conditions. After the clot has separated the serum is pipetted off and inactivated—that means destroying the complement—by heating to 56 degrees centigrade for $\frac{1}{2}$ hour. A stock preparation, if kept sterile, can be kept months.

5. *Red Cells* (Sheep's Blood). This is obtained from the carotid of a sheep (under strict aseptic conditions). This is at once defibrinated, washed two or three times with normal salt solution and mixed in a 5 per cent. suspension with normal salt and put in the refrigerator until ready for use. The next step is to standardize our amboceptor—that is, to find in what dilution a definite amount of amboceptor will lake a given amount of red cells by the addition of a definite amount of complement. This test serves to control both the complement and ambo-

8. Berl. klin. Wchnschr., No. 1, 1907, page 12.

ceptor. Next we standardize the organ extract (antigen). First—Ascertain that the antigen does not prevent or cause hemolysis. Second—The serum of the suspected syphilitic containing (antibodies) should be tested in order to see that the complement is inactivated and the serum, in conjunction with the amboceptor, does not hemolyze red cells. The red cells should always be freshly washed with salt solution, taking great care not to use any that have hemolyzed.

TECHNIC.

Take as many tubes as you have sera to be tested, always adding several known syphilitic and normal sera. Place in each tube about 10 c.c. salt solution. A definite amount of antigen is placed in each tube. Next a definite amount of complement is added and, lastly, the serum to be tested (antibodies) is added. It is best to make duplicate tubes, using the original amount of antigen and complement and twice as much blood serum as in the first tubes. These are shaken well, put into an incubator for 1 hour at 37 degrees C. According to our diagram, the antigen is united to the antibody, being bound by means of complement, provided the patient's serum contains syphilitic antibodies. Next we add a definite amount of amboceptor and red cells. These are in turn briskly shaken and placed in the incubator for another hour.

In the event that there are no syphilitic antibodies present in the patient's serum, the complement deviates and binds amboceptor and red cells and a laking takes place. On the contrary, if the antigen is united to the antibody by means of complement, the red cells will not become hemolyzed, as the complement has all been used up, and the resulting mixture will be turbid—that is, the red cells will remain undissolved. Whether the limitations of this test extend beyond the mere diagnosis and permits us to judge in some degree of the effectiveness of a cure, time alone will tell. The tendency of modern treatment of syphilis is toward a biological treatment—that is, to control the treatment with the Wassermann reaction. Of one thing we are positive—that the Wassermann reaction gives us control of the diagnosis after the period of second incubation, no matter what length of time has elapsed, provided the patient is not cured.

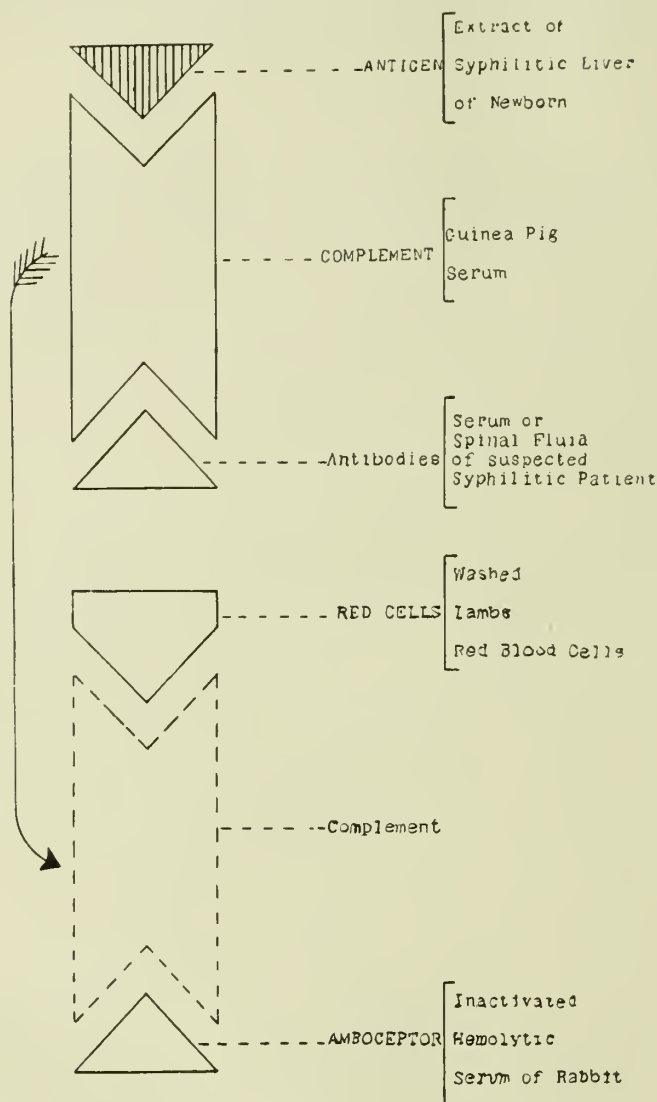
Unfortunately the Wassermann reaction is complicated. It requires time, patience and careful work and each series of tests must be controlled by known, normal and syphilitic sera. Statistics in regard to the value of this reaction are now available in large numbers and there seems to be no branch of medicine or surgery that is not benefited by this discovery. Since its introduction this test has been performed upon thousands of cases and the statistics of the various authors have been practically the same.

Citron⁹ reports 156 cases non-syphilitic, all negative; 108 cases syphilitic or suspected syphilitic, 74 per cent. positive; 43 cases tabes and paresis, 79 per cent. positive.

9. Berl. klin. Wchnschr., No. 43, 1907, page 1370.

Blaschko¹⁰ examined 283 cases, all syphilitic. He divides them into the following:

1. Primary lesion, 63 cases, 90 per cent. positive.
2. Early syphilis with symptoms from first eruption to 4 years. 56 cases, 98 per cent.



3. Early syphilis without symptoms from first eruption to 4 years, 67 cases, 80 per cent.

4. Late syphilis from fourth year on with symptoms, 26 cases, 91 per cent.

10. Berl. klin. Wchnschr., Nov. 14, 1908, page 694.

5. Late syphilis from fourth year on without symptoms, 51 cases, 57 per cent.

6. Cerebro-spinal from fourth year on, 10 cases, 60 per cent.

Wassermann¹¹ examined 163 cases of syphilis. His classification is as follows:

Chancre	26 cases	17 pos.	68 per cent.
First eruption	42 cases	39 pos.	93 per cent.
Second eruption	42 cases	39 pos.	93 per cent.
Tertiary	16 cases	16 pos.	100 per cent.
Lues of nervous system.....	8 cases	6 pos.	75 per cent.
Malignant syphilis	4 cases	4 pos.	100 per cent.
Hereditary syphilis	4 cases	3 pos.	75 per cent.
Latent syphilis	36 cases	30 pos.	83 per cent.
Cured, 4 cases; 0 positive. 22, 12, 11, 9 years negative.			

During the past year we have made some 200 examinations. Necessarily our cases have been confined to medical and cutaneous diagnosis and our results run parallel with those of the other observers quoted. A few cases of interest are the following:

1. A mother who had given birth to syphilitic child had never shown signs of syphilis and, according to Colles law, was immune to syphilis. Our serum test was positive.

2. Seven cases of syphilis, ranging from 5 to 6 years' duration, gave a negative reaction. These cases had all had good antiluetic treatment.

3. One case of specific ulcer of the septum of the nose gave a positive reaction.

4. One case of Argyll-Robertson pupil gave a positive reaction.

5. One case of optic atrophy gave a positive reaction.

6. One case of interstitial keratitis gave a positive reaction.

Summing up Mühsam's¹² conclusions in regard to the Wassermann reaction in general we have the following:

1. The reaction is specific.

2. A positive reaction shows the presence of active syphilis.

3. A negative reaction does not always show that lues is not present. The value of the test in eye lesions may be appreciated from the following statistics:

Cohen¹³ reports:

Iritis	23 cases	7 positive
Parenchymatous keratitis	9 cases	6 positive
Choroiditis	3 cases	2 positive
Optic atrophy	6 cases	4 positive
Neuroretinitis	4 cases	1 positive
Choked disc	5 cases	5 negative
Paralysis of muscles.....	5 cases	1 positive

11. Berl. klin. Wehnschr., No. 50, 1907, page 1599.

12. Berl. klin. Wehnschr., No. 1, 1908, page 14.

13. Berl. klin. Wehnschr., No. 18, 1908, page 877.

Reflex iridoplegia	1 case	1 negative
Ophthalmoplegia interna	1 case	1 positive
Central scotoma	1 case	1 negative
Atrophy of retina	2 cases	1 positive
Atrophy of the iris.....	1 case	1 negative
Vascular macula of the cornea	1 case	1 negative

Of all these cases only 12 were clinically luetic, yet 23 gave a positive reaction, showing that in 10 cases he was enabled to make a diagnosis by means of the Wassermann reaction.

More convincing still are the statistics of Leber.¹⁴ He examined 160 cases; 31 clinically were not syphilitic. In those cases that were clinically syphilitic 92 per cent. were positive.

In 95 cases syphilis could not be excluded; neither could it be proven. Forty-two were positive. These include: Keratitis parenchymatosus, 31 cases, 83 per cent. positive; iritis, 48 cases, 33 per cent. positive; choroiditis and retinitis, 23 cases, 26 per cent. positive. He calls special attention to the great value of the reaction in diagnosing retinitis and choroiditis.

Fleischer¹⁵ also calls attention to the value of the serum test in optical lesions. In 10 cases of keratitis parenchymatosus 9 positive, 1 negative. In 6 cases of iritis 1 positive, 5 negative. This agrees with the clinical experience that iritis is more often tubercular and keratitis luetic.

From these statistics we are able to judge that the Wassermann reaction in eye lesions is just as valuable as in other branches of medicine and surgery.

Cohen's opinion in regard to the serum diagnosis in eye lesions is as follows: (a) If negative it gives certain diagnostic points. (b) If positive it is decisive for diagnosis and treatment. In conclusion we have the following to say:

1. That *Spirochaeta pallida* are present in all syphilitic lesions, including those of the eye.

2. In chancres and mucous patches the diagnosis should be made by the demonstration of the spirochete.

3. All other lesions of the eye of syphilitic origin may be diagnosed by means of the Wassermann test.

4. Eye conditions depending upon pathological changes in the nervous system of syphilitic origin may be diagnosed by the Wassermann test.

5. All doubtful cases that might be explained on a syphilitic basis should be given the Wassermann test.

109 Randolph Street.

14. Berl. klin. Wehnschr., No. 12, March, 1908, page 618.

15. Berl. d. ophth. Gesellsch., Heidelberg, 1908, page 256.

ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF THE ILLINOIS STATE MEDICAL SOCIETY.

GENERAL OFFICERS 1908-09

PRESIDENT - JONATHAN L. WIGGINS, EAST ST. LOUIS
FIRST VICE-PRESIDENT - CLIFFORD U. COLLINS, PEORIA
SECOND VICE-PRESIDENT - JAMES E. STUBBS, CHICAGO
SECRETARY - EDMUND W. WEIS, OTTAWA
TREASURER - EVERETT J. BROWN, DECATUR
(Ex-officio Clerk of the Council.)

EDITOR - GEORGE N. KREIDER, SPRINGFIELD
522 Capitol Avenue.

ASSISTANT EDITOR - GEORGE EDWIN BAXTER, CHICAGO
1916 Evanston Avenue.

THE COUNCIL

CARL E. BLACK, JACKSONVILLE.	J. WHITEFIELD SMITH, BLOOMINGTON.
H. C. MITCHELL, CARBONDALE.	J. Q. ROANE, CARLYLE.
M. L. HARRIS, CHICAGO.	J. W. PETTIT, OTTAWA.
J. F. PERCY, GALESBURG.	J. H. STEALY, FREEPORT.
W. K. NEWCOMB, CHAMPAIGN.	

AUGUST, 1909.

THE NEW BOARD OF ADMINISTRATION.

The members of the State Medical Society, having had a great influence in bringing about a change in the administration of the eighteen charitable institutions of Illinois, will be pleased to know that Governor Deneen has appointed as members of the first board men who are calculated to bring the institutions to the highest point of excellence.

We must first congratulate the members of the Board of Charities who have succeeded in legislating themselves out of office. Individuals of smaller caliber might have been members of the old Board and might have delayed indefinitely the consummation of much needed reforms.

Fortunately, Drs. Billings, Hirsch, McNally and the ladies, Bourland and Lathrop, were individuals of high ideals, laboring only for the good of the unfortunate inmates of the asylums and hospitals, and self never entered into the proposition. Upon them fell a large part of the burden of securing the new law, and to them must be given a large part of the credit.

For many years petty politics of the towns and villages where these institutions were located have been a source of annoyance and weakness to the Governors of the State. The institutions were made a part of the political machine which ambitious politicians endeavored to create, but usually the result was far different from that which was desired. Instead

of becoming a source of strength, they became a source of weakness. The Governor, however, has profited by the mistakes of his predecessors and he will, with us, hope that the new law has been so wisely framed and will be so tactfully administered that politics in the State institutions of Illinois will never more be heard of. There is no evidence of selfish political motive on the Governor's part in the appointment of these gentlemen.

The new Board has for its head ex-Lieutenant Governor L. Y. Sherman, a man above reproach and practical, capable and progressive. That he will be successful in this new position we feel certain. The alienist is Dr. Greene, of the Kankakee institution, who came to that responsible position from Nebraska and made good. He is said to be an administration officer of exceptional ability. Mr. Frank D. Whipp, who has been made fiscal agent of the Board, has been engaged in work of this character for years and is probably better adapted for the position than any man in the State. The other members, O'Connor, former mayor of Peoria, and Judge Burroughs, of Edwardsville, are said to be clean, capable and representative citizens. We congratulate Governor Deneen on his appointments to these high offices. We understand the members of the Board will begin their term of office Jan. 1, 1910. Mr. W. C. Graves will probably remain as the executive officer of the Board. His long experience will make a valuable official.

THE LEGISLATIVE RECORD OF VOTES ON THE PASSAGE OF THE OSTEOPATHIC BILL.

The publication of the votes of the members of the General Assembly on osteopathic legislation has seemed to stir up a great deal of interest among the members of the General Assembly, which has been augmented by the letters a number of these gentlemen have received from their constituents regarding the stand taken by them on this important matter. In the confusion of the late hours of the session it is possible that some mistakes were made in the records, but undoubtedly the publication as given in our last issue pretty accurately represents the stand of the various members on this matter. Those members of the State Society who have not yet written to their members commending or condemning their stand in this matter should do so at once in order that all mistakes may be corrected as soon as possible and in order that an active campaign may be made to prevent the further political activity of those gentlemen actively supporting osteopathic measures.

In this connection we will state that it has come to our knowledge that Senator Clark, of Chicago, was opposed to the osteopathic bills, although he seemingly voted at one time in favor of them. It seems that Senator Clark is a dealer in dental supplies and has been an active supporter of the legislation favored by the Illinois State Dental Society, and it is to him that the society owes a great part of the valuable legislation they have obtained in Illinois. Senator Clark is probably undoubtedly aware of the unscientific character of the osteopaths and would hardly be found in the ranks of those supporting such a movement.

H. T. Ireland of Washburn claims that his record is incorrectly given and writes as follows: "This bill was up twice. The first time I voted against it, but before finishing the roll call the friends of the bill saw defeat and it was postponed. The next time the bill was called up was at a night session, when I was absent, no notice having been given of further action.

"As you perhaps know, I have a son who is a practicing physician at this place and it appears absurd that I would favor the Osteopath Bill. I will appreciate your efforts to correct the error, which does me a great injustice."

Michael S. Link of Mitchell, Madison County, claims that he is incorrectly recorded as voting for the bill. It has been proven to our satisfaction that he voted against the bill.

The committee has also received a letter from Representative Frank W. Shepherd which Dr. Whalen informs us is justified. It appears that Henry A. Shepherd voted for the bill and that Frank W. Shepherd did not vote. Thomas Campbell of the Thirty-Third district voted for the bill, while he is credited in the last issue with not voting. Dr. Whalen suggests that Mr. Campbell be given all the glory he is asking for with his constituents and suggests that the Thirty-Third, Fourteenth and Thirty-Eighth districts' votes be published over again and we accordingly give the vote of the members from these districts. So far as we have been able to learn, the publication of the vote has stirred up the members quite a little and will no doubt do good in the future.

FOURTEENTH DISTRICT

The Counties of Kane and Kendall

Thomas B. Stewart, N. V.	Kane	.....	Aurora
Arwin E. Price, N. V.	Kane	.....	Elgin
Frank W. Shepherd, N. V.	Kane	.....	Elgin
George W. Alschuler, A.	Kane	.....	Aurora

THIRTY-THIRD DISTRICT

The Counties of Henderson, Mercer and Rock Island

Frank A. Landee, N. V.	Rock Island	.....	Moline
Thomas Campbell, F.	Rock Island	.....	Rock Island
Frank E. Abbey, N. V.	Henderson	.....	Biggsville
Henry L. Wheelan, A.	Rock Island	.....	Rock Island

THIRTY-EIGHTH DISTRICT

The Counties of Greene, Jersey, Macoupin and Montgomery

Frank W. Burton, A.	Macoupin	.....	Carlinville
William H. Behrens, A.	Macoupin	.....	Carlinville
Louis P. Daley, N. V.	Macoupin	.....	Carlinville
Henry A. Shepherd, F.	Jersey	.....	Jerseyville

THE ATLANTIC CITY MEETING.

The meeting of the American Medical Association at Atlantic City, while not so largely attended as the recent meeting in Chicago of the organization, was a thoroughly representative body and quite successful. The weather was, unfortunately, very disagreeable and much of the pleasure of attending a meeting at the resort is lost when disagreeable weather prevails. This was especially to be regretted because there seemed to be an unusually large number of wives, daughters and sweet-

hearts of the medical men in attendance and entertainments arranged for them were, of necessity, nearly all abandoned.

The reception given to Secretary Simmons was extremely flattering and his friends in addition presented him with a valuable watch and chain, with a loving cup to Mrs. Simmons, as a mark of their continued confidence and esteem. He was given a three months' leave of absence.

The papers read in the sections were all interesting, but nothing very unusual developed in any one subject as far as we were able to learn.

The suggestion of President Gorgas, originated by Dr. S. Weir Mitchell, that a monument be erected at Washington to the memory of the physicians, both Federal and Confederate, who lost their lives in the Civil War, was a happy thought and testifies to the complete amalgamation of all sections of the country. It leads one to believe that, through medical men the world over, all nations will be brought into harmony and dreadful wars of the past will be no more seen upon the earth.

The finances of the Association were reported in excellent condition and the trustees were authorized to at once begin the erection of a \$200,000 building in Chicago, for which they have ample funds to pay.

The growth of the Association for the past ten years has been something phenomenal, and, while there has been some discordant elements developed, it is probable that the next ten years will show a still more remarkable consolidation of the medical interests of the country.

The election of Dr. William H. Welch of Johns Hopkins University to the Presidency was a compliment to Professor Welch and worthily bestowed. Dr. Welch will bring the Association years of high reputation as a student and a teacher.

The selection of St. Louis for the next annual meeting will enable the physicians of the Great Mississippi Valley, now universally considered the center of the country, to gather in large numbers and we prophesy a record-breaking meeting in 1910. Certainly a large number of Illinois physicians will find it convenient to go to St. Louis.

THE CONSOLIDATION OF MEDICAL COLLEGES.

All over the country a movement is in progress to diminish the number of medical colleges and the state societies are using their great influence to bring this about. The latest movement is in Arkansas, where two small colleges have been struggling for years, neither of them having the respect of the medical fraternity or attracting nearly all the students from their own state. The matter had gone so far that the council of the state society at its last meeting passed a resolution calling for the consolidation of these colleges in the best interests of the medical profession of Arkansas. The president appointed a committee of ten, none of them residing in Little Rock (where both colleges were located), and it is believed that this committee will force the union of the two schools.

Mergers have been consummated by the union of five medical schools at Louisville, Ky., into one, two at Cincinnati, and two at Indian-

apolis. The two schools so long existing at Keokuk, Iowa, have been merged into the medical department of Drake University. The Minneapolis and St. Paul schools have been merged into one. Two California schools have been merged into one; and thus all over the country the movement has become so general that we hope for the beginning of a better era in medical education.

One of the few remaining cities where a superfluity of medical schools exists is the metropolis of Illinois, where no fewer than thirteen schools are found. Some of these are said to be little better than "quiz classes," and it is a serious question whether the time has not arrived for the Illinois State Medical Society, through its council, to take up this matter seriously and call for the union or disbanding of at least half of these schools. It is certainly little to the credit of the home of *The Journal of the American Medical Association* to have this disgraceful condition of medical education.

VACATION TRIPS TO EUROPE.

There seems to be almost an epidemic of European travel among the physicians of Illinois and other states during the present summer. More than two score are said to have gone or are going from Chicago and from the state outside of Chicago probably fifty or sixty more, making at least one hundred altogether. Many are making the trip for the first time and will stay for more or less prolonged periods of study. Others are making their trips for rest and recreation, finding that no trip is so restful and invigorating as an ocean voyage and contact with the civilization of the old world. Among those going for study is Dr. George Edwin Baxter of Chicago, the Assistant Editor of *THE JOURNAL*, who will study in Vienna and return about Jan. 1, 1910.

THE CARROLL FUND.

Those of our members who were present at the House of Delegates when an appropriation was made by the State Society for the relief of the widow of Dr. Carroll will remember the enthusiasm with which this appropriation was made and will be glad to read the following correspondence in reference to the gratuitous contribution made by the State Society. They will also be pleased to learn that through the munificence of the various professional bodies of men throughout the country the mortgage has been lifted from the home of the Carrolls and that the Kissinger fund is sufficient to provide for Private Kissinger probably as long as he lives.

War Department,
Office of the Surgeon General,
Washington, June 1, 1909.

MY DEAR DR. WEIS: Your letter of May 29 with enclosure has just been received. I have no words to express my gratification at the action of the State Medical Society of Illinois in response to the appeal for the relief of the widow of the late James Carroll. The contribution from your state is by far the most substantial any medical society or organization has given, and I think members of

your state society should be proud of the public spirit that prevails in your organization. Another matter that is a source of gratification is the fact that this large contribution comes from a state where yellow fever has never been a live issue. A receipt is enclosed for \$500, as you will probably need it to file with your vouchers. Assuring you of my high regard, believe me,

Very sincerely yours,

[Signed.]

WM. B. IRELAND.

DR. EDMUND W. WEIS, Secretary Illinois State Medical Society, Ottawa, Ill.

Department of Bacteriology,
Harvard University Medical School,
Boston, June 1, 1909.

MY DEAR DOCTOR WEIS: I find in my mail to-day your letter under date of May 29, transmitting to me the check for \$100 to be added to the Kissinger fund, as the result of the action of Dr. Frank Billings and the vote of the House of Delegates of the Illinois State Medical Society.

May I ask you to convey to the delegates my gratitude and appreciation for this substantial addition to the fund which we are collecting? The money thus far in hand amounts to a little over \$3,300, and, if we should receive no more, it would serve to keep this couple from want for a very considerable length of time. With renewed thanks, believe me, very faithfully yours,

HAROLD C. ERNST.

DR. ATKINSON NOT DESTITUTE.

Some of the medical journals in Illinois have been endeavoring to raise quite a disturbance concerning the alleged destitution of Dr. W. B. Atkinson, of Philadelphia, Pa., former Secretary of the American Medical Association. Being somewhat suspicious of the sudden interest developed by these journals, we took the liberty of making enquiry of a friend in Philadelphia, where Dr. Atkinson has lived for half a century, and received the reply which we print below and which indicates that the statements made in these journals, as well as in several others over the country, are quite incorrect:

"My Dear Doctor:—Your letter making inquiry about Dr. Atkinson has been received. I was rather surprised at the information it contained, as I felt sure that if Dr. Atkinson was in destitute circumstances his friends would have heard of it. As I had not seen him for some time, I took occasion to visit him. He has been suffering for several years from paresis. He is very deaf, and it is only occasionally that he is able to recognize any one. He lives in Germantown, one of our most pleasant suburbs, in a three-story house, has a nurse, and I noticed that they had a servant, the house looked very well furnished, and so on. I saw him and had a talk with him, and as I came away his wife volunteered the fact that the Doctor had never been a very good manager, and that it kept her counting in order to take care of everything and keep it running; they were not able to have a trained nurse, but that they had a very good nurse. Further, that the County Medical Society in Philadelphia has a Medical Aid Association, of which Dr. Atkinson was for a long time one of the officers. If he has been at any time in want, there would not be any need of his making application, as the money would be furnished him by his friends here. So you can rest assured and assure others that Dr. Atkinson is not in need of assistance from the American Medical Association."

County Secretaries' Page.

A suggestion was made at the last Secretaries' Conference that we ask the editor of THE JOURNAL for a page to be devoted to the county secretary and his work. The matter was taken up with Dr. Kreider, and here it is. Let us make use of it each month. Suggestions for program, questions in regard to policy in general and in specific cases, ideas in regard to notices, and in fact anything that you are doing that might interest other secretaries will be gladly given space. There will be a portion of the page devoted to a question box and answers, and it is hoped that you will make use of the same.

CONVENTION ECHOES.

"Start a monthly publication. The printing does not cost much more than postals and by having it entered as 2d class matter the postage will surprise you." McLean County has had one for some time and it is a success. Fiegenbaum, of Madison, and Steely, of Vermilion Counties, will soon follow suit and all should get on their mailing lists. Do not forget to exchange with Donaldson, of Pennsylvania. His publication is called the *Medical Program of the Medical Organization of Washington County, Pa.* His address is Canonsburg, Pa. Be up and doing with your copy for the printer. Do not be afraid of printers' bills. Give your society publicity among the profession. Here is a sample letter of a Wisconsin secretary:

My Dear _____:

You are hereby appointed a "Royal High Barker" for the county medical society for 1909. Your duties are: to attend every meeting, bring all your friends, your agreeable neighbors and those you want made agreeable—even if force is necessary. You are also to bark for the good of the society throughout the year, in season and out of season. Personally, I am offering a golden crown and a halo for every man who does not miss a meeting in 1909. Now is your chance, if ever. Cordially yours,

"The successful county secretary is the one who is 'always on the job.'"

"See that your older members have some committee work that they like and consult them often. Our experience has been that the more meetings you have the better the attendance is and the more interest manifest."

"Keep a biographical record of all your members."

"Be prompt in your correspondence and keep copies on file."

"Report your officers-elect immediately to the state secretary."

"Make accurate and prompt reports of all changes in or additions to your membership after each meeting."

Keep a complete list of all practitioners in your county, both members and non-members.

Do not go to bed until the minutes of your meeting are all written up.

Get on the mailing list of all the Live Wires and do not forget to make use of the secretary's page in THE JOURNAL. C. H. L.

Correspondence.

THAT OSTEOPATHIC BILL.

To the Editor:—A few weeks ago the medical profession of the whole state was wrought up over the "Osteopathic Bill" which was before the Illinois Legislature, and we all wrote personal letters to our representatives at Springfield.

There are three representatives from each district, and I wrote to all three from my district. Two of them answered my letters, stating that they would not vote for the bill mentioned. One representative did not answer my letter and later avoided voting when the bill came up for roll call.

I further note that there were representatives who voted for the osteopathic bill and others who dodged the issue.

Doctor, are any of these men from your district? If so write them for their reasons. Surely they have a reason for the faith that is in them. If your representative received more requests to vote for the osteopathic bill than he did to vote against it, he was justified in voting yea. It is your duty to take an interest in the community's welfare. Write your representative now and ask him not to vote for such a bill again when it comes up again.

If your representative did not vote at all, he is probably in doubt as to what his constituents want. Now, do not leave him undecided any longer. Write him to-day and let him know your convictions on this matter. We not only want this bill defeated, but the spirit killed. Also every other bill that tends to lower the character, either moral or educational, of the profession. We want to raise the standard of the profession in every way, and it is up to you to help right here.

If your representative voted against the osteopathic bill, just drop him a line to-day and thank him. You like to have your patient thank you for what you do. So does your political representative want your approval when he works in your behalf, and whether you voted for his election or not you owe him a "thank you" and he will appreciate it.

The Bulletin of the Chicago Medical Society of May 22, on page 7, says: "Osteopaths Defeated." Now, don't you believe it. They did get a short upper jab and they have taken the count, but they will be back at the old stand again shortly and we will have to meet them better trained and prepared. You must let your legislator know where you stand. Get busy and write every one a letter TO-DAY. I wrote mine. DO IT NOW.

CHARLES J. DRUECK, M.D., 599 East Forty-sixth Street.

COUNTY AND DISTRICT SOCIETIES

ADAMS COUNTY.

The regular monthly meeting of the Adams County Branch of the State society was held July 12 in the usual place. Dr. Knox, the vice-president, called the meeting to order. Others present were Drs. Nickerson, Bates, Mercer, Spence, Center, Christie, Jr., Shawgo, J. B. and Kirk, Rice, Ericson, Koch, Brenner, Williams, W. W. Becker, Knapheide, Pfeiffer, Grimes and Wells. Visitor, Dr. Green. Dr. Shawgo, as chairman of the entertainment committee, made a report suggesting that the annual outing be held at Highland Park at the time of the August meeting. Suggestion was approved by the society and the committee, with the addition of the secretary, was instructed to make the final arrangements. Dr. Nickerson made report of the vote of our various representatives in the legislature as regards the osteopathic bills and offered a letter commendatory of the stand and vote of Senator Campbell S. Hearn and Representative Geo. H. Wilson. A copy of this letter was ordered sent to the gentlemen. Representatives Groves and Bolin voted with the osteopaths on every bill. Resolutions anent the matter of the Ancient Order of Shepherds, a fraternal, free medical service society were read. They were to the effect that any member of the society engaging to do their practice or make examinations for them would be considered guilty of unprofessional conduct and subject to disciplinary proceedings. Luncheon was served at the Hotel Newcomb. In the afternoon Dr. W. S. Knapheide presented an interesting paper on "Syphilitic Arthritis of the Knee and Elbow Joints," which was discussed by Drs. Christie, Williams and Nickerson. Dr. Becker read a paper on "Cholera Infantum" which was timely, and contained interesting and valuable points. This paper was discussed quite generally.

Adjourned.

CLARENCE A. WELLS, SECRETARY.

COLES COUNTY.

The Coles County Medical Society met at Charleston July 6, 1909, in the Court House. Dr. Bennet being absent, Dr. Dudley, the vice-president, presided. The minutes of the April meeting were read and approved. Dr. R. H. Craig gave a report of the state meeting. Dr. T. O. Freeman read a paper on "Operative Appendicitis," which was discussed by Drs. Montgomery, Alexander, Craig and Voight. Dr. J. W. Alexander read a paper on "Tubercular Peritonitis," with a report of seven cases. This was well discussed by all the members present. Dr. N. C. Iknayan read a paper on "Diet in Diabetes." Dr. Voight followed with a paper on "Glaucoma in Diabetes." This paper was discussed by Dr. Bell.

R. H. CRAIG, Sec.

COOK COUNTY.

CHICAGO MEDICAL SOCIETY

The following is a list of officers for the ensuing year, declared elected by the Election Committee of the Chicago Medical Society at its annual election, June 15, 1909:

President—John A. Robison.

Secretary—George F. Suker.

Councilors at Large for Three Years—George W. Webster, Merlin Z. Albro, William Senn, Edward A. Fiskin and C. C. O'Byrne.

Alternate Councilors at Large for Three Years—Willis O. Nance, James P. Houston, John Edwin Rhodes and Bernard Fantus.

BRANCH SOCIETIES

NORTH SIDE BRANCH

President—Rudolph Holmes.
Vice-President—William Hessert.
Secretary—Paul F. Morf.
Councilor—Robert B. Preble (two years).
Alternate Councilor—C. G. Buford (two years).

NORTH SHORE BRANCH

President—C. M. Robertson.
Vice-President—A. C. A. Gaul.
Secretary—Samuel J. McNeill.
Councilors—Clarence W. Leigh (two years), Thomas A. Hogan (two years).
Alternate Councilors—M. A. Griffin (two years), William G. Lee (two years).

EVANSTON BRANCH

President—G. W. Boot.
Secretary—W. C. Danforth.
Councilor—S. V. Balderston (two years).
Alternate Councilor—Alice B. Brown (two years).

NORTHWEST BRANCH

President—R. S. Michel.
Secretary—Melchior Whise.
Councilor—Charles R. Moore (two years).
Alternate Councilor—W. M. Burroughs (two years).

WEST SIDE BRANCH

President—D. W. Graham.
Vice-President—B. H. Breakstone.
Secretary—Bernard Fantus.
Treasurer—C. B. King.
Councilor—C. C. Rogers (two years).
Alternate Councilor—A. M. Harvey (two years).

AUX PLAINES BRANCH

President—J. W. Tope.
Vice-President—W. Even Baker.
Secretary—F. W. Kettlestrings.
Councilor—Charles Humiston (two years).
Alternate Councilor—J. W. Tope (two years).

DOUGLAS PARK BRANCH

President—V. F. Masilko.
Vice-President—J. H. Edgecomb.
Secretary—J. G. Carr.
Councilor—J. L. Abt (two years).
Alternate Councilor—E. E. Cunat (two years).

STOCK YARDS BRANCH

President—S. T. Felmlee.
Vice-President—S. L. Fridus.
Secretary—L. J. Isaacs.
Councilor—Hugo E. Betz (two years).
Alternate Councilor—D. R. Landau (two years).

ENGLEWOOD BRANCH

President—M. W. Bacon.
Vice-President—A. C. Kleutgen.
Secretary-Treasurer—C. Hubart Lovewell.
Councilor—Carl Langer (two years).
Alternate Councilor—C. J. Hagens (two years).
Members Englewood Council—W. H. Bohart, J. G. Campbell.

SOUTH SIDE BRANCH

President—William Fuller.

Secretary—Otis H. Maclay.

Councilors—J. L. Miller (two years), G. Frank Lydston (two years), E. B. Tuteur (two years).

Alternate Councilors—E. P. Norcross (two years), M. M. Portis (two years), J. F. Burkholder (two years).

SOUTH CHICAGO BRANCH

President—Don S. Harvey.

Secretary—John S. Stanton.

Treasurer—D. Staneff.

Councilor—E. E. Tansey (two years).

Alternate Councilor—J. A. Anderson (two years).

NORTHWEST SUBURBAN BRANCH

No report received.

CHICAGO HEIGHTS BRANCH

No local election of this branch.

CALUMET

President—C. Clayton.

Vice-President—Raymond C. Libberton.

Secretary-Treasurer—W. H. Conner.

Councilor—J. Kaufman (two years).

Alternate Councilor—G. Seim (two years).

Regular Meeting, April 28, 1909.

A regular meeting was held April 28, 1909, with Carl Langer, president of the Englewood Branch, in the chair. Dr. E. C. Bullock, Silver City, N. M., read a paper entitled "Twelve Years of Phthisiotherapy in the West," which was discussed by N. S. Davis, Theodore B. Sachs, J. F. Hultgen, E. F. Ingals, a member, and Fenton B. Turck. Adjourned.

DISCUSSION ON THE PAPER OF DR. BULLOCK.

Dr. N. S. Davis:—I wish to express my thanks to Dr. Bullock for the interesting paper he has just read, and I am sure I express the thoughts of those present here when I say that I have not for a long time listened to a discussion of the effects of climate in tuberculosis more carefully throughout than the one Dr. Bullock has made. I have been convinced from an early period of my practice of the efficacy of climatic treatment when it was properly carried out. I mean by that, when a patient lived properly in a good climate. Let me place the subject of climatic treatment before you in this way: We all admit to-day the possibility of effecting a cure in many patients afflicted with tuberculosis in any and all climates. Many of us have seen cases of tuberculosis recover in Chicago or its neighborhood. I have now in mind the case of an individual, who is apparently cured, though she lived here in the city and has, moreover, led a convent life, which are conditions as unfavorable as well can be. Although we may admit that patients may be cured or at least apparently recover in any climate, I believe that we must admit that it can be accomplished more comfortably and more certainly in certain places than in others. For instance, we would not by choice treat a patient affected with tuberculosis in its incipency or slightly advanced by confining the patient constantly to the house. Nor would we by preference treat such a patient in a large city, where people live in-doors and not out-of-doors, and where, even if one lives out-of-doors, he will be constantly in an air vitiated by deleterious dusts, smoke and gases. There are also climatic conditions which make certain localities much more favorable for the treatment of tuberculosis than others. Since it is essential to the treatment of this disease

that those having it spend most or all of each twenty-four hours in the open air, is it best to demand this in a locality which necessitates a fight against climatic conditions or where such a life can be led in comparative comfort? In the neighborhood of Chicago during the winter season we have to make a real fight against climatic conditions, and therefore we seek to escape this struggle by housing ourselves, by traveling in closed cars and other vehicles and in every way endeavor to escape from our natural environment. Yet the tuberculous patient must be kept constantly in these conditions, in the most inclement season of the year, conditions from which the healthy strive to escape. There are certain climates in which the outdoor treatment can be carried out to the greatest advantage and much more comfortably. The best is one that is dry, that is elevated, and that ensures a maximum of sunshine with agreeable cool weather in winter and no excessive heat in summer. These conditions can be found on the elevated plateaus and in the valleys of the Southwest. That such a climate insures greater success as well as more comfortable treatment, the statistics and the analysis of climatic conditions, which Dr. Bullock has given us to-night, are convincing. Nevertheless, he has placed these facts very fairly before us, and admits that while it is the climate of choice it is not possible or best to attempt to treat every patient there. The possibility of effecting an arrest of the disease is not so much greater in the West than here, but it is somewhat greater, for he shows that the possibility of prolonging life or effecting a cure by a residence in the West is increased by a decided percentage.

Another point which Dr. Bullock mentioned, but which I feel he did not emphasize as much as it should be emphasized, is that more important than climate is the guidance the patient is under. A patient is not likely to do well in whatever climate he is placed if he is not under proper guidance or proper and continual supervision. Moreover, it is not every physician who is able to supervise well patients afflicted with tuberculosis, and to lead them to recovery. Therefore, it is very essential, at all times, in prescribing for a patient afflicted with tuberculosis to place the patient in the hands of one whom we know will manage him properly and surely. Therefore, when we consider the difference between the various sanatoria, it is not a question of brick and mortar; it is not simply a question of surroundings, or always so much one of climate as it is of the man under whom the patient is to be placed. Of the elements which must work together to bring about favorable results in a tuberculous patient, the first is the right kind of guide, the second out of doors treatment, and third, when possible, the best climatic conditions.

Dr. Theodore B. Sachs:—I was glad to hear the views of Dr. Bullock, whose experience in treating tuberculosis in high altitudes extends over many years. Sanatorium regime plus favorable climate, for those who financially and otherwise can afford it, is sound advice. Unfortunately, but a small number of the tuberculous sufferers can avail themselves of climatic treatment under proper conditions, and the number becomes smaller yet if you enforce the dictum, "permanent residence in the climate in which 'cure' is accomplished." This implies such an outlay of money and such a radical rearrangement of your life's interests that it is within the reach of but very few.

Bearing all this in mind, it must be admitted that favorable climate is a factor to be considered when other essentials of modern treatment of tuberculosis are complied with. The climate itself has to be chosen, of course, with great care, as high altitude is applicable in some cases and harmful in others, etc. Thus, considering the narrow range of application of "climate" in dealing with the tuberculosis problem in general, where tens of thousands are involved and ninety-nine out of a hundred must be treated at home, we appreciate the vigorous campaign of tuberculosis workers all over the world for sanatoria in "home climates." The results in such institutions in our own country compare very favorably with those in the West. The recent successful campaign for a municipal sanatorium in Chicago was based largely on the results of our own institution, the Edward Sanatorium at Naperville, a department of the Chicago Tuberculosis Institute.

We must take care of our own tuberculous population, for the benefit of thousands that are to be saved and the tens, hundreds of thousands, that are to be instructed through the operation of such institutions in our midst. I beg to differ with the Doctor in his absolute denunciation of specific therapy as a part of treatment of tuberculosis. Dr. Trudeau, who for the last twenty years employed tuberculin as an adjunct measure in carefully selected cases at the Adirondack Cottage Sanatorium, proved some years ago by an analysis of subsequent history of discharged cases that the "results" are more permanent in those treated with tuberculin.

During the last few years the remedy has grown in favor, being employed in many sanatoria, in small initial doses (Bacillen Filtrate .0000001 c.c.) gradually and carefully increased, to avoid unnecessary reaction. Bacillen filtrate is used as an accessory measure in selected cases at the Edward Sanatorium at Naperville. During two years of its administration no harmful results were ever observed, while in a number of stationary cases (in which it is chiefly employed) further improvement followed the introduction of tuberculin as a part of treatment.

The remedy should be employed with caution and under conditions in which continuous observation of the patient is possible. For that very reason its range of application in private practice is naturally limited. It is very unfortunate that tuberculin is becoming lately the means of the charlatan in wringing tribute out of the disheartened consumptive who easily is drawn to any "panacea" offered to him. The essentials of treatment of tuberculosis remain the same: Outdoor life, nutritious diet and regulated rest and exercise; tuberculin therapy is but an accessory measure, to be used in selected cases and under conditions of utmost caution.

Dr. J. F. Hultgen:—I think we can all compliment Dr. Bullock on the excellent paper he has given us to-night. The work he has done will stand the test of time. Yet, while his facts are facts, I do not believe his interpretations represent the ideas of men who are engaged in tuberculosis work. Some people, for instance, are extremists in feeding. Osler, in one of the last editions of his book, says: "The cure of tuberculosis is a question of nutrition. Digestion and assimilation control the situation. Make the patients fat and the rest will take care of itself." Again, a few have gone astray with regard to the exclusive use of tuberculin. Some time ago our colleagues told us that they used tuberculin and nothing else, and with it they were able to effect a very large percentage of cures among people in this town who could not afford such luxuries as the New Mexico climate. Again, others have advocated the climatic treatment to the extreme test of our patience. Dr. Bullock's statistics show that by the climatic treatment alone, such as is afforded by the Government Sanatoria in New Mexico, the results are better than those obtained in four Eastern institutions. This may be true for some time yet, but I think a comparison from the same institutions two years from now will show different results.

The Doctor related his experience with regard to the use of tuberculin. He has used it in sixty-seven cases. I do not think we can draw any reliable conclusion from such a small number of cases. If he had used it in six hundred or seven hundred cases then there would be reason for drawing some deductions regarding its value. He is too much against it to suit me. There is no question nowadays about the specificity of tuberculin. No other biological product has the effects tuberculin has. In the first place, it has a specific effect upon tuberculous lesions. That has been proven. It has been shown in cases of lupus and in tuberculides. It also affects directly the pulmonary lesions. Anybody who has had experience with tuberculin in tuberculosis of the lungs knows that after the first injection or so the pulmonary symptoms improve; the râles disappear after the injection of tuberculin. Indeed, that is the first thing one observes. Everyone is impressed with the rapid local improvement after the first few injections with tuberculin. Some investigators have injected simply bouillon culture and glycerin, and have thought it would produce a specific inflammation in tuberculous patients. That has been tried in this country, and it does not produce such results.

Further proof for the specificity of tuberculin is the disappearance of the cutaneous reactions under its repeated and continual administration. When a patient has been pretty well treated and has done well for some time under tuberculin treatment, there comes a time when he does not react to the von Pirquet test, which, to almost everybody, proves that there is something being accomplished. Just why that is we do not know.

I notice that Dr. Bullock does not use anything as a guide, as, for instance, blood count or Wright's method. We should bear in mind that tuberculin can not be given without any guide. We should not leave the matter of administration of tuberculin to the patient or nurse. That is very bad practice, and can not be condemned too strongly.

We should turn our attention a little to the economic side of tuberculosis. Ninety-five per cent. of the tuberculosis cases, as Dr. Sachs has pointed out, are here in Chicago. Let us stay right here and settle this problem. It is entirely out of the question for these 95 per cent. of people to get away from their homes and go to other places for treatment. It is so very seldom that a patient has a thousand dollars to spend for this treatment and change of climate. We rarely find such patients in our clinic at the Chicago Polyclinic. Our motto should be, the greatest good for the greatest number. We should not shift these people to another climate or to another state. We should keep in mind that tuberculosis is largely a question of pediatrics. It is a disease of infancy. The tuberculosis of the adult is simply the last part of the song that is begun at the cradle.

Dr. E. Fletcher Ingals:—I was very glad to hear Dr. Bullock's paper, because he has analyzed the statistics carefully. Impressions of cases are of very little value in estimating results. The paper speaks of Dr. Troudeau's impressions—if he analyzed his cases carefully he might have drawn different conclusions.

I am in perfect accord with Dr. Bullock as to the use of tuberculin. Those who use tuberculin say, if it is used in sufficiently small quantities, it does very little harm. That is correct. The smaller the quantity the less harm it will do. There is no doubt about its being an agent capable of great harm if used indiscriminately.

I have had quite a long experience in the treatment of tuberculosis, and have carefully taken histories of over 2,000 private cases. I regret that I have not analyzed my cases carefully, but I fully believe that, other things being equal, a good climate adds 50 per cent. to a patient's chances of recovery. I believe, too, that those who have spoken are entirely right when they say we will have to cure most of our cases here. The majority of them may undoubtedly be cured here, and it is certain that those who have not enough money to secure every comfort if they go away ought to stay at home. It is almost a crime to send poor patients away unless they can go where they can get the necessary attention and comforts at nominal cost.

I was surprised to hear the results obtained from high altitude in advanced cases of tuberculosis. High altitude has not seemed to me desirable for such patients.

Sanatoria are very helpful for people who are not able to obtain similar or as good attention elsewhere, but I do not think they are of any special value to those patients who can afford to pay for equal skill and comforts at home or better in a good climate.

It is interesting to notice the general trend of the profession with reference to the treatment of tuberculosis. It is supposed by many that in the last thirty years we have discovered that high altitude, a clear atmosphere and a great deal of outdoor air are important in the treatment of tuberculosis. We have made no new discovery, for Galen and even Hippocrates taught the same thing. We have not advanced so much in the treatment of tuberculosis as generally supposed, but the public has been frightened into better observance of hygienic laws.

A Member:—In attempting to analyze the tuberculosis problem, I think the matter resolves itself into this, that tuberculosis is a calamity to a community and can be handled only in that community in which the calamity occurs. Fully 90 per cent. of the tuberculous patients we see are unable to take advantage of climate and altitude. Therefore, the problem with which we are confronted is to

maintain the institutions that are going to handle tuberculous cases in this community. The rich, the 5 per cent., can surely be taken care of, and from the standpoint of our pockets it is more important to think of the other 95 per cent. If we desire to get rid of tuberculosis in a community the greatest care must be taken in treatment, and our attention must be devoted to these 95 per cent.

Dr. Fenton B. Turck:—I think the essayist is entitled to a very thorough and free discussion of the subject he has presented, and I do not think the members have discussed his paper as they should have done. The paper was on the physiological effects of high altitude in the treatment of tuberculosis. He attempted to show by statistics certain results which he had obtained just as we carry out in the laboratory certain methods and obtain certain results, and present them with our protocols and such deductions as we may see fit to make.

An important point brought out was the reaction which occurs on the blood pressure and blood corpuscles. We know that future development in the combating of this disease will be in the direction of sera in some way, and while this is accomplished somewhat empirically at present, in the future it may be done scientifically, and the reactions that occur in open air and high altitudes are evidently producing a certain amount of antibodies against infection. It is to be hoped that in the future some biological researches will be made which will corroborate some of the points mentioned in this paper, particularly the explanation of the reactions he has found clinically, so that we may have a scientific explanation and a better application of the principles that are involved.

CHICAGO MEDICAL AND CHICAGO SURGICAL SOCIETIES.

Joint Meeting, May 5, 1909.

A joint meeting of these societies was held May 5, 1909, with Dr. A. E. Halstead, president of the Chicago Surgical Society, in the chair. Dr. Dudley P. Allen, of Cleveland, Ohio, read a paper, by invitation, entitled "Late Manifestations of Intracranial Hemorrhage of Traumatic Origin." The paper was discussed by Drs. A. J. Ochsner, John B. Murphy, Arthur Dean Bevan, S. C. Plummer, Hugh T. Patrick, Archibald Church and, in closing, by Dr. Allen. On motion of Dr. Murphy a rising vote of thanks was extended to Dr. Allen for his able presentation of the subject.

LATE MANIFESTATIONS OF INTRACRANIAL HEMORRHAGE OF TRAUMATIC ORIGIN

DR. DUDLEY P. ALLEN, of Cleveland, Ohio (by invitation): Injuries of the head, seemingly slight, and followed, if at all, by a short period of unconsciousness, may cause intracranial hemorrhage. This may occur at the point of injury or on the opposite side by contrecoup. There may be no fracture of the skull, or, if present, the fracture may be only linear, with no depression. If unconsciousness occurs, this symptom may be permanent. A period of lucidity, followed later by unconsciousness, is the best marked evidence of intracranial hemorrhage.

The paper does not discuss grave injuries with extensive fracture, nor those in which unconsciousness has been continuous or has returned quickly. In the cases presented the shortest period until the return of symptoms is fourteen days, and the periods before operation vary from sixteen days to nine months. In the twenty-seven cases which are analyzed, the clot was subdural in 26. In one it was reported as subarachnoid.

The paper discusses the various symptoms occurring in such cases, such as headache, vomiting, slowness of speech, slowness of motion, paralyses, eye symptoms, etc.

Skulls were presented to show the distribution of the meningeal arteries. Specimens of bone grafts in the skulls of dogs were also shown.

DISCUSSION

Dr. A. J. Ochsner:—I have encountered but one typical case of subdural clot, and it was that of a cattle owner in Montana, who was struck across the head

with a chair. He was knocked down. He rose at once, walked to his home, and was apparently well for two months, at the end of which time he began to suffer from headaches. The symptoms came on so late after the injury that, at first, they were not attributed to the proper cause, and it was only after two years had elapsed the patient became a raving maniac, and was paralyzed on the right side. It then occurred to the people that possibly the condition might have some relation to the primary injury. The man was brought to Chicago, trephined and eight ounces of a dark sanguineous fluid was removed. The left frontal lobe had been pushed to the right, so that the condition of the patient seemed hopeless. Within twenty-four hours, however, the patient began to speak and within two months he was apparently normal. This was in 1891.

Dr. John B. Murphy:—It does not appear that the formation of a clot played a very important rôle in a large percentage of the cases reported by Dr. Allen. It appears to have been fluid. The same kind of cyst that has been mentioned we see occasionally in fractures attended with non-union and remaining indefinitely without absorption, until there is a disturbance in some way, when absorption takes place rapidly. Dr. Allen has shown that it was not the blood which plays the important rôle, but the pressure produced by the transudation, and this continued after the blood was removed. Another important point is that in nearly all of them the hemorrhage was subdural. Hemorrhage occurs from the middle meningeal artery, and where the clot is sufficient to produce compression the patient has symptoms coming on rapidly if the vessel has been ruptured. In operating on a case of hemorrhage from the middle meningeal artery, we rarely have the bleeding going on at the time we operate, but if we disturb the clot the bleeding starts. The relationship of the middle meningeal artery to extradural hemorrhage is so thoroughly understood and its control so easily and readily effected by ligation of the external carotid, that it is astonishing sometimes to see what can be accomplished by this ligation. Ligation of the external carotid at the angle of the jaw will stop hemorrhage. The immediate indication in hemorrhage from the middle meningeal artery is to stop bleeding. One does not have to open the skull to do this. He can do a very simple operation, namely, expose the external carotid just above the angle of the jaw and apply a ligature to the bleeding vessels.

With reference to exposing the brain, shall we do a submuscular excision of the bone in decompression, or shall we use a bone flap? It seems to me, in the small number of decompressions we have to do for exposure of the middle meningeal artery, in its first portion, the removal of the entire bone is the better thing to do, but for the appearance of the patient an osteoplastic flap gives the best result.

Dr. Arthur Dean Bevan: After hearing Dr. Allen's paper and looking at his chart, certainly in the case in which the symptoms did not come on until eight months after the injury, we can not account for the symptoms from hemorrhage alone; that is, a hemorrhage the result of the trauma. What is the explanation? I believe we have here a pachymeningitis, a process which is imposed upon the trauma. Have we any parallel of such a condition? Yes, we have. We have the well-known condition of hematocele involving the tunica vaginalis. We have a series of cases following injury of the tunica vaginalis in which immediately after the trauma there is a slight hemorrhage. This hemorrhage is not absorbed. Within a few weeks there is another slight hemorrhage, which is not absorbed. Within a short time there may be another hemorrhage, and finally we have a considerable accumulation of blood and serum within the tunica vaginalis, started by the original trauma, but being in fact a traumatic inflammation of the tunica vaginalis and not purely a simple hemorrhage alone. I am quite impressed with the possibility that in those cases where we find eight months after a head injury, or fifty-two days thereafter, we have pathologically a very similar condition in pachymeningitis hemorrhagica externa of traumatic origin to the hematocele which we have in the tunica vaginalis. Sometimes where we have very definite evidence of hemorrhage apparently from the middle meningeal artery, when we come to

operate and expose the dura, we do not find the hemorrhage is from the middle meningeal. I relate one such case in point.

Dr. S. C. Plummer: If the hemorrhage were extradural, it would, in all probability, be from a vessel so large that the symptoms would have appeared at an earlier date than fourteen days. Moreover, if the late symptoms were not due to the hemorrhage primarily, but to the fluid which was poured out as the result of irritation from the hemorrhage, we would think theoretically that the conditions outside of the dura would not be favorable for such a pathologic process; consequently, it only seems natural that in these cases where the symptoms came on so late, the lesion was invariably found in the dura instead of outside of it. There is one condition which may be confused with subdural hemorrhage coming on late or showing symptoms at a late period, and that is what Bollinger has described as a late apoplexy. He claims that after a contusion of the brain, a degeneration of brain substance may take place which may extend far beyond the limits of the original lesion. I recall one case which I thought came under this head. A man was struck in the temporal region in a railroad wreck; he received a slight wound, which was one-half or three-quarters of an inch in length. It divided a branch of the superficial temporal artery, which had to be ligated. This wound healed promptly. Ten days afterward, while at his desk, he was suddenly attacked with what seemed to be cerebral apoplexy. He had all the symptoms of hemiplegia. He never recovered entirely from this attack, although he made practically a perfect recovery, so far as the control of the muscles was concerned. The cerebral symptoms never disappeared entirely. There was always slowness of his mental processes, and one symptom, which was quite unusual, was excessive secretion from the parotid gland on the side opposite to the superficial lesion which he had. This was first noticed some weeks after the hemiplegia appeared, and persisted as long as he lived, which was two and a half years after the injury, and what he complained of more than anything else was an excessive flow of saliva.

Dr. Hugh T. Patrick:—I have not seen any cases of the particular type described by Dr. Allen. I can recall some cases where the symptoms began a considerable time after traumatism of the head, but cases with distinct symptoms of compression, with hemiplegia or distinct local paralysis, I have not seen. One thing that struck me in the table presented is that most of the typical cases, as indicated by the table, as well as in two perfectly similar cases reported by Allen of Philadelphia, have been in patients well along in years. The cerebral circulation in people advanced in years is sometimes a fearfully and wonderfully managed affair, and it seems to me more reasonable that this sort of thing would be more likely to happen in those advanced in age, and I do not know that I can explain it. In operating on brain cases, Walton of Boston says it is much safer, if there are localizing signs, to follow these localizing signs in looking for the lesion and not the point where the injury was received. I think that is about as good gospel as anyone could have in operating on the head. Of course, there are some signs, which look to be localizing signs, which are not of any focal value. For instance, paralysis of the sixth nerve is of little or no localizing value, although it is a localized trouble. But there are cerebral localizing signs which are more valuable in locating the place where the trouble is than is the point where the external violence was received. Rigidity on the affected side is a characteristic thing, not only in cerebral injury, when it occurs on the paralyzed side, but is indicative of a surface lesion. It is not found frequently in deep hemorrhage or in ordinary cerebral apoplexy.

Dr. Archibald Church:—As Dr. Bevan has pertinently suggested, in some of these cases it is not unlikely the operators were dealing with a pachymeningitis hemorrhagica, which is particularly common among men of the third, fourth and fifth decades of life, especially if they are alcoholic in their habits, and those cases in which we find laminated clots, or more or less organized layers of blood within the skull, or within the dura particularly, are manifested in their clinical phase by advancement and recession of symptoms, so that we may have at the end of a period of ten days or two weeks, or even a later date, some advance-

ment in paralytic manifestations or convulsions or rigidities, that would be connected with perhaps a slow traumatism or serious head injury. The dictum that we should be guided by the cerebral symptoms in exploration of the skull contents, with perhaps a comparative disregard of the external evidences of injury, is not always a safe rule. About two months ago there was admitted to St. Luke's Hospital a man accustomed to drinking heavily, and after being on a spree for a number of hours, he was seen late one Saturday night staggering down the street and seen to fall. He was brought into the hospital by the police, and they at first got the idea he had been slugged, but witnesses who saw him staggering along the street and fall were interrogated and said there was no hold-up about it. In the fall he received a wound over the left eye which caused a slight contusion. There was a distinct gash through the eyebrow, and he, as a result of the fall, or after they came to him, was in a peculiarly apathetic sort of condition. On the next day it was found that the left side of his body was paralyzed or lacking in its functional control. He staggered and dragged the left leg and used the left arm with uncertainty. He talked and was very much confused. He would sink into a comatose state and then brighten up. In one of these comatose conditions he brightened up to such an extent that an operation, which had been advised and planned, was postponed. When he became comatose again and showed Cheyne-Stokes respiration, an operation was done on the brain corresponding to the symptoms, but nothing was found beneath the dura. The convolutions and pit looked edematous. The man brightened up after the operation, but gradually relapsed into a comatose condition which deepened until finally he died without regaining consciousness. This last period of coma was due to the operation in part.

Upon postmortem examination, which was done, on the left temporal side under the location of the injury there was a hemorrhage, not a massive one, but one which seriously depressed the contour of the frontal lobe. If the operation had been done at this site on which the man had the local wound, perhaps his life might have been saved, so that, as a rule, we should not only operate on the side indicated by the nervous symptoms, but also operate upon the side which has evidently received the violence. Bullard and Munro of Boston have shown that most comatose conditions associated with cerebral concussion or injuries of the brain are produced by concussing agencies, and the coma which occurs in cerebral hemorrhage is due to a disturbance of the osmotic situation in the cranium. A disturbance vascularly throughout the entire brain substance is really the essential organic fact in the development of intracranial tension, which, of course, to a certain extent, is curative if it is reduced to such a degree as to stop persistent hemorrhage. I believe that in most of these cases where fluid contents are found in meningeally located clots, or in this particular situation, the variety of symptoms presented is secondary to a new osmotic situation which is developed in the course of time by agencies with which we are not entirely familiar.

Dr. Allen (closing):—In connection with the remarks of Dr. Church, I will say that Case 26 was one of injury on one side of the brain; there was hemorrhage on one side, and the symptoms were upon the same side. The patient was operated upon the opposite side, and postmortem examination revealed the fact that the fibers did not cross over. Several similar cases are reported.

CHICAGO MEDICAL SOCIETY.

Regular Meeting, held May 12, 1909.

A regular meeting was held May 12, 1909, with Dr. R. R. Ferguson in the Chair. "The Subinvolted Uterus," by Richard R. Smith, Grand Rapids, Mich. Discussed by R. T. Gillmore, C. E. Paddock, a member, and R. R. Smith. "A Proposed Adjunct to the Present Plan of Sewage Disposal in the Sanitary District of Chicago," by Sanger Brown. Discussed by R. R. McCormick, John W. Alvord, E. O. Jordan, Arthur Lederer and Sanger Brown. Adjourned.

DISCUSSION ON THE PAPER OF DR. SMITH.

Dr. Robert T. Gillmore:—This is probably one of the most important factors in the invalidism of women after childbirth. The thorough comprehension of subinvolution embraces the consideration not only of subinvolution of the pelvic organs, but of the abdominal walls, abdominal organs, blood vessels and nervous system incident to pregnancy and the puerperal condition. Subinvolution is a pathologic condition, an arrest of normal involution, of which we know little, but we have come to the conclusion that it is probably not a degenerative change, but a chemical change, an autolysis. The etiology of cases of infection, laceration of the cervix and retention of the placenta or decidua should be considered not from the question of the ultimate treatment, but rather from that of prevention of these conditions. Obstetrics has not been given the weight it deserves, because even a normal delivery is a most serious condition.

In regard to prophylaxis: We must first consider infection, which can not be avoided even by those who practice aseptic midwifery. Asepsis can not always be secured, even though we are particularly careful about sterilization, because infection may be present in the genital tract somewhere. Then, when we consider the immediate repair of injuries, we must take into account the treatment of the patient while she is in bed. Involution is not a matter of weeks, but of months. The organs do not return to their normal condition inside of ten days, the time the patient usually is kept in bed, but involute for three months, and, as Dr. Smith said, the process may require years; in fact, the organs may never return to their normal condition.

As to treatment during the puerperium: Besides having the patient assume the postural position, she should be made to lie on her side or abdomen for five or six days, then assume the knee-chest position. We must ascertain that the organs are involuting properly, and if not, we must consider all the other postures the patient can take to prevent the possibility of injury.

As to the symptoms: There are hemorrhages lasting for a week or two, discharges lasting for several weeks, and on getting up out of bed the patient has backache, bearing-down sensations, etc., and on examination one finds an enlarged uterus with a patulous cervix and more or less hemorrhage from the vaginal tract. These points should be noted and not passed by lightly.

In regard to hysterectomy for these conditions after they have become chronic, I presume that after the patient has reached the menopause a hysterectomy is justifiable, but while childbirth is possible, hysterectomy should not be considered.

Dr. Charles E. Paddock:—Subinvolution is a condition which I believe can be prevented in a vast majority of cases, and the treatment should begin early before the termination of labor. Our aim should always be to bring the patient through her pregnancy in a healthy condition, and to do this a careful attention on the part of the physician to the hygiene of the pregnant woman is absolutely necessary. By such treatment we are taking an important step in the prevention of subinvolution of the uterus. The better the health of the woman when she arrives at term the less liability is there to inertia of the uterus.

Firm contraction and retraction of the muscle fibers produces an atrophy of the uterus by shutting off its blood supply, and any artificial means which will aid in this process hastens involution of that organ. The following should be along the line of treatment:

1. Watch every pregnant woman as you would a sick patient and let her arrive at term in a normal healthy state.

2. Recognize malpositions of the fetus and prevent inertia uteri.

3. Treat the third stage of labor by the Credé method with a tendency toward watchful expectancy.

4. Repair all lacerations of vagina and vulvar orifice.

5. Ten days or two weeks should be the time that the patient be in bed after delivery. Rarely less time than this and frequently longer. During this time, commencing about the seventh day, a general massage should be given daily and light exercise with arms and legs begun. At the tenth or twelfth day the uterus

should be level with the symphysis and the lochia should be white with very little discoloration.

6. Give ergot immediately after labor and continue its use in moderate doses for forty-eight hours, if necessary.

7. Put the babe to the breast at regular intervals.

My experience is limited in those cases of subinvolution existing near the menopause. I believe, however, that most of them are chronic conditions due to neglect in former labors.

Hemorrhage continuing four or five weeks after delivery usually means that involution is not taking place in a normal way, and the exploration of the interior of the uterus and probably a curettement is indicated.

A Member:—Posture is the thing in the prevention of subinvolution. Massage is entirely out of place. After two or three days the patient should be allowed to roll around in bed, thus favoring contraction of the uterus. A little medical stimulation sometimes is not out of place, but massage certainly is. Having failed to secure subinvolution, what shall be done? It is here that Dr. Smith advocates his radical procedure, and I agree with him in that.

Dr. Smith (closing):—In reference to the matter of hysterectomy, I would again say that this procedure is rarely applicable to younger women, but rather only to those who have borne their children, are nearing the climacteric, or are beyond it. I think we as a profession have been too conservative in allowing such patients to continue suffering year after year when it is in our power to give them relief. Each case must, however, be considered individually.

DISCUSSION ON PAPER OF DR. SANGER BROWN.

Mr. R. R. McCormick:—The suggestion of a separate septic tank for each house is a new one, and if the scheme proves successful, great credit will come to its author. It is clear that we must consider such suggestions as these. The people who legislated in Chicago in 1889 legislated with the idea that the time when Chicago would have a population of 3,000,000 was so far off that it need not be considered. Under the law 20,000 cubic feet of water per minute for each 100,000 population must flow. The drainage canal was designed to carry 600,000 feet, thus providing for a population of 3,000,000. By mistake the canal was built bigger than intended, and therefore can carry water for more than 3,000,000 people. The government says that inasmuch as it was planned to provide for only 3,000,000, that is all the canal will be allowed to provide for, no matter how great its capacity. We are contesting this point in the courts now, because when Chicago has a population of more than 3,000,000, the entire capacity of the canal must be used unless some such assistance as is suggested by Dr. Brown is invoked. Irrespective of the relative merits of different methods of disposing of sewage, we must look for help outside of the dilution method by some means of artificial purification of sewage.

This matter has been recognized by the board for about one year. It has been trying to decide what to do, by consulting men of experience and by original research. Some lawyers say that the Sanitary District had no right to consider sewage disposal except by dilution, but we have gone on with our experiments and are now installing a testing plant where we are going to have septic tanks and settling basins, sprinklers and filters, as advocated by Dr. Dunbar. It is my hope that this testing laboratory can be continued forever, and yield information that can be used by the community for all time.

As to the final method to be employed, to take care of the drainage and to help out the canal, whether the septic tank for each house or tanks for large areas or rock filters, I am not prepared to advance any theory of my own.

There is a fundamental fault in the construction of the legal entity of the sanitary district. The drainage board is an elective body, and in the very nature of things we do not elect the most scientific men along this line. The nine members of the board are men of good intention, but without any special training in bacteriology or civil engineering. It is my hope to evolve a plan whereby

we can get volunteers, trained men who will advise with our bacteriologists and engineers, to the end of increasing the knowledge and value of the science of sanitary engineering.

I want to call attention to the enormous and constantly increasing cost of municipal government. A few years ago we considered paved streets a luxury. Now they are universal. Twenty years ago we passed the drainage canal act, the public believing that \$20,000,000 would take care of sewage disposal forever. The expenditure to date has been \$60,000,000, and to complete the canal \$10,000,000 more will be required. We recognize that we must go into the disposal of sewage other than by the canal. That means more money. Before long you will say that Michigan water is good, but not good enough unless it is filtered. The question is, where are we going to get all this money? If we get it by taxation, we are going to revolutionize the entire basis on which business is conducted. Personal property in the form of bonds will be taken away from us. We now have a tax rate of two-thirds of 1 per cent., which is not so serious on a 4 per cent. bond, but if you allow the tax rate to go up to 2 per cent., where will the holder of a 4 per cent. bond come in? Therefore, we must consider some means of keeping down the cost as much as possible. It is with this idea that the board has been doing certain things which have evoked considerable criticism, such as developing the dockage along the canal, into which we have gone extensively; also the development of electric power, using the water used for purifying the sewage over again and converting it into marketable electric energy. As we go on into municipal development, there will be a constantly increasing expense that can not be avoided and it will be necessary for the public to devise methods which will create revenues to counteract that great cost.

Mr. John W. Alvord (Sanitary Engineer):—It may be of interest to the medical profession to know something of the extent to which sewage purification has become a practical art. This will be more fully realized when it is stated that about one-half of the sewage of England is purified at the present time by artificial methods. In this country there are at least several hundred municipalities in which sewage is artificially purified to a greater or less extent. The art of purification was early necessitated in rural residences, and institutions located in the country, so that it may be said that the majority of these large institutions not located within reach of city sewage have provided themselves with artificial purification of their domestic wastes. The suggestion for residential septic tanks in Chicago, by Dr. Brown, is not, therefore, wholly novel or unpracticed, although it may seem so to residents of Chicago who are not perhaps informed on this particular subject. It is interesting to mention that in Chicago we have perhaps as many as 100,000 tanks that have to be provided for our dwellings, by reason of the city's plumbing ordinances, which may fairly be said to approximate the septic tank in their action. I refer to the so-called house catch-basin, in which the waste waters from the kitchen sink, the bathtub and the laundry are intercepted, so that the grease and organic matter from these waste waters does not pass directly into the sewers. Such tanks retain these organic substances, and if left undisturbed largely dissolve them by bacterial action in due course of time.

There are objections to a universal adoption of residential tanks in a large city, such as has been suggested by Dr. Brown, but from a scientific point of view they are rather economic and sentimental than scientific. The question would be raised, for instance, as to whether it is more economical for the householder to provide an individual septic tank for the reduction of the organic matters of his house waste, or whether it would be more economical for the municipality to care for such wastes, either wholly or in part. Present practice inclines to the belief that this is best done by the municipality.

I am often asked what a septic tank is. Sanitarians have had some difficulty in uniting on the difference between a septic tank and a sedimenting tank in which bacterial action is actively progressing. But the courts have held that a septic tank is one in which organic wastes are dissolved by the action of anaerobic bacteria to such an extent that *none* of the organic suspended matter escapes from the tank. This, they say, is accomplished by the slow flow of the polluted

liquid through the tank, also by the surface scum which forms a roof over the contained liquid, excluding light and air. Proper septic action is also evidenced by the lack of dissolved oxygen in the effluents of such tanks,, and by non-disturbance from cleaning or other agitation. It may be said, in passing, that many tanks which produce effluent comparatively free from suspended matter might not correspond with this somewhat dogmatic definition, but we must legally conclude that where this is the case, such tanks are sedimentation tanks, or sewage reduction tanks, not completely septic.

The use of septic or other sewage tanks used in sewage purification has been necessitated by the desirability of first reducing the organic solids contained to impurities in fine suspension or solution, so that filters commonly used as a second stage would not become clogged with these matters. The discovery that by bringing the sewage into a state of comparative rest and holding it definite intervals under proper conditions, we may expect a more or less complete dissolution of the solids, has an important step in the art. Bacteria, multiplying rapidly under such conditions, act in a way which, although not fully understood, is none the less quite effective. The solids are largely reduced into inoffensive gases, such as methane or marsh gas and dilute carbonic acid gas. Such tanks have also become useful by reason of the fact that they are a comparatively odorless method of reducing the solids. To the past generation of sanitarians offensive odors were considered a cause of disease, and as a legacy from this idea there is a proper and popular aversion to the decomposition of solids in such a way as to produce such odors. In the septic or reduction tank we may have decomposition going on, but in a comparatively odorless manner which results only in the production of such gases as are not particularly offensive.

The resulting effluent from septic or reduction tanks can be readily filtered in what might be called the second stage of sewage purification; that is, either by intermittent filtration through prepared sand beds, or by sprinkling on beds of broken stone, or by irrigating upon porous soils, the principle in either case being the same. Sewage purification is, therefore, now a well-established and successful art, which can be relied upon with confidence to do away with the ugly problems produced by wastes from isolated dwellings or congested populations. By the utilization of bacterial principles, the art has become economical and effective, where before, ten years or so ago, it was burdensome, expensive, and disagreeable. Finally, I may say that to me the utilization of micro-organism in the rapid and harmless reduction of organic matter in the liquid wastes from large cities is as wonderful a step in scientific progress in the recent past as are the *x*-rays, wireless telegraphy, or antiseptic surgery. All alike are long advances into the wonderful secrets of a fathomless natural order and law.

Dr. Edwin O. Jordan:—I would like to endorse very heartily the central feature of Dr. Brown's paper, namely, the necessity for experimentation along the line of sewage disposal. Two chief points must be considered in this connection; first, the relation of sewage to the public health; second, the creation of a nuisance through the decomposition of the organic matter contained in the sewage. As regards the first point, we have in this city in large measure solved that problem, for the present at all events, by the discharge of the bulk of Chicago sewage into the Desplaines and Illinois Valleys, thus in great part removing the possibility of contamination of our drinking-water with sewage. As regards the possible danger to the health of the people of St. Louis, the Supreme Court of the United States has decided that they have nothing to fear, so that at the present time the public health side of the sewage disposal question may be said to be in a fairly satisfactory condition.

The second point, the decomposition of organic matter, is not on quite the same footing. We are discharging larger and larger quantities of organic matter into the drainage canal, and the time is soon coming when the decomposition of this matter is likely to prove a serious nuisance in the neighborhood of Chicago.

There remains also to be solved the problem of the disposal of sewage of nearby communities. South of Eighty-seventh Street much sewage still goes

into the Lake. There is danger to public health there. This problem must be met by the sanitary district in the near future.

The whole question of the prevention of nuisance from decomposition of organic matter is at present in a very unsettled and uncertain condition. Dunbar's book on Sewage Disposal is one of the latest and most authoritative contributions on this subject. In this Dr. Dunbar states that he hesitated for a long time before publishing the data he had secured, because he felt that these facts only permitted of tentative and temporary conclusions.

Take, for example, the question of the amount of organic matter destroyed in septic tanks through the agency of bacteria. There is the greatest difference of opinion on that point. Under some conditions as much as fifty or sixty per cent. of suspended organic matter may be destroyed in a septic tank. Other experiments indicate that not more than twenty-five per cent. of organic matter is destroyed, and Mr. Clark, of the Massachusetts State Board of Health, says that in some places in England, only ten per cent. of organic matter is destroyed in septic tanks. This indicates the great divergence in experimental data, and emphasizes the necessity of further investigation of the whole problem of sewage disposal. We are very much to be congratulated that the Trustees of the Sanitary District are about to take up in a broad way and under scientific auspices the study of this very essential question.

Dr. A. W. Lederer:—The only trouble in this connection is that septic tanks cannot be built properly here. Some tanks remove as much as eighty-five per cent. of organic matter, while others remove none at all. I do not believe that septic tanks could be installed properly in every house, but they can be, on a large scale, by a municipality or sanitary district. The septic tanks in Lake Forest and in Champaign are doing excellent work, but prove that this work must be under the supervision of competent engineers.

Dr. Brown (closing):—In my paper I explained why I thought the individual tank might be made to do better work than a municipal tank. There is no reason why a small tank, which is of interest to the householder and under his supervision, as well as that of a well-trained municipal inspector, is not in better condition to do the work than any other sort of tank. As far as the construction of the tank is concerned, it is absurd to say that the individual tank cannot be built as well as the larger tank. We have the same conditions to meet in both, but on a smaller scale in the house tank than in the municipal tank. However, the main point in my paper is that something must be done, and the public has a right to look to the medical profession to move first in the matter. After hearing Mr. McCormick speak, I think we may feel assured that the matter is in competent hands, and is being diligently and intelligently worked out, but we must create public sentiment. We have been too lax. It is a subject we do not like to get close to, but we must meet this question of sewage disposal. In New York they have reached the limit in putting sewage into the harbor and must devise other means of disposal. In Columbus experiments with the septic tank were carried on for a number of years, but proved unsatisfactory or inconclusive because they had no means of controlling the character and quantity of the inflow. I believe the method I have suggested will give satisfaction from every point of view. I have operated a septic tank as described for four years for eighty people. I have succeeded in getting a uniform flow and the result has been a most satisfactory one, though I have made no analyses.

I think it is premature to enter into the discussion as to which is the better method, whether to collect the sewage from a certain locality and have it treated in collective tanks or whether it is better to have a house tank. The first thing to determine is under what conditions the tank will do the best work, and whether we can get along without filtration or not.

SOUTH SIDE BRANCH

The South Side Branch of the Chicago Medical Society held a most successful ladies' night banquet at the Lexington hotel, Saturday night, June 26. The attendance was about 150. Addresses were made by President of the Branch

Dr. E. B. Tuteur. Responses were made by the President-elect, William Fuller, and President-elect of the Chicago Medical Society John A. Robison.

Dr. Tuteur briefly reviewed the work of the branch during his incumbency. The scientific programs had created much interest and discussion. Much original work had been brought out. The attendance at the meetings had been more than doubled. This was the first ladies' night banquet given by the profession of the South Side. He hoped that the spirit of the evening would not be lost, but that functions of this character would promote true fellowship between physicians, their wives and families.

Dr. Fuller dwelt on the necessity of standing together and working for better and greater things, for scientific progress through individual effort, and pleaded for the united support of the members of the branch.

Dr. Robison spoke of the necessity for loyalty to the central society by the branches and discountenanced the idea that some had that the branches should consider themselves separate and distinct from the parent society.

The declamations, music and vaudeville performance furnished for the entertainment of the guests were very high class and were thoroughly enjoyed by all present.

CHICAGO SURGICAL SOCIETY.

Regular Meeting, March 5, 1909.

A regular meeting was held March 5, 1909, with the president, Dr. A. E. Halstead, in the chair.

ENTEROLITHS AS A CAUSE OF INTESTINAL OBSTRUCTION.

Dr. D. W. Graham exhibited a specimen taken from the jejunum of a woman 69 years of age. It was oblong in shape and tapered at what was the upper end as it lay in the intestine. It originally measured something over $2\frac{1}{2}$ inches in length and $1\frac{1}{4}$ inches in diameter. The small end was quite brittle and crumbled easily, indicating a recent formation. The stone was sawed in two so as to show the structure. The nucleus was plainly seen, was one-third of an inch in diameter, was situated three-quarters of the long diameter from the upper smaller end, and showed on analysis to be a gall-stone. He gave a detailed account of the clinical picture presented by this patient.

ECHINOCOCCUS CYST OF THE KIDNEY.

Dr. Graham reported next a case of echinococcus cyst of the kidney. He had seen but this one case. Patient had been confined two weeks before he saw her; labor had been normal, but shortly after confinement she had a high fever, which was thought to be puerperal. Examination revealed a large fluctuating mass on the right side, extending from the hypochondrium down to the crest of the ilium, filling one-half of the abdomen. Some of the white bodies passed with the urine. These proved to be small hydatid cysts, and gave a clue as to the nature of the abdominal mass. They were as large as the end of the little finger. She passed more of them, some of them being broken, after entering the hospital. It seemed incredible to him that such bodies could pass through the ureter, yet they did so pass, and he had found the same phenomenon had been referred to by a few writers. As all the symptoms, both local and general, indicated suppuration, he incised the mass in the loin, and a great number of daughter cysts came out with the free flow of pus. No effort was made to remove the cyst. Another feature was that the anterior wall of the large sac was calcified, so that it crackled on pressure. Nothing more than free drainage was attempted. This however, made but little improvement in the patient's already profoundly septic condition, and she died ten days later.

DISCUSSION.

Dr. D. A. K. Steele narrated an almost identical experience to the one mentioned by Dr. Graham some fourteen years ago. The patient, a woman, had intermittent attacks of intestinal obstruction which lasted for two or three days, then followed

by vomiting. It was a case of acute intestinal obstruction in which he opened the abdomen and found the concretion as large as a hen's egg, a so-called enterolith. It was formed in the same way with these concentric additions to the central stone or gallstone. This lay like a ball-valve at the ileocecal valve or junction where the ileum passes into the cecum, and he thought the narrow portion of the ileum there caused the obstruction to the passage of the enterolith. It was readily removed through a short incision.

Dr. Dean Lewis presented a paper on "Pathology of Goiter," which was illustrated with numerous stereopticon slides.

THE SURGICAL CONSIDERATIONS OF GOITER.

Dr. D. A. K. Steele read a paper on this subject in which he referred to the histology of goiter, and spoke of simple colloid hypertrophy, adenoma, adenoma with cystic degeneration, and exophthalmic varieties, after which he discussed the surgical treatment. Total removal of the gland is no longer done except in case of carcinoma, as it is followed by myxedema in 70 per cent. of the cases. Removal or injury of the parathyroids should be avoided on account of the danger of tetany developing. By preserving the posterior capsule and leaving one-fifth of the gland we are safe from these dangers. Care to avoid injury of the recurrent laryngeal nerve when tying the inferior thyroid artery is necessary, and led Kocher to use cocaine anesthesia. Deaths occasionally occur from shock, hemorrhage, pneumonia, infections, myxedema and tetany, in spite of the greatest care on the part of the surgeon.

DISCUSSION.

Dr. M. L. Harris divided the cases into two classes, and he thought the method of procedure is quite different. First, into those of ordinary goiters, such as the adenomas and colloid goiters, and all varieties of goiter except exophthalmic goiter. In the colloid goiters his method was enucleation. In these cases one could enucleate the diseased part of the gland and leave the healthy part. By the enucleation method one was able to save all of the function of the gland on either side. In the exophthalmic variety one should avoid the gland and never get into it. Therefore, he should separate outside of the gland until he got to the posterior part. One should avoid getting into the gland because of wishing to avoid scattering the gland material, and thus preventing its absorption and the production of hyperthyroidism which causes death in these patients after these operations. In the exophthalmic variety, after exposing the gland and getting down to the capsule, he proceeds to ligate the vessels. Usually, great difficulty is experienced in dealing with the superior thyroid. In pulling down the upper corner of the lobe we stretch and draw on the superior thyroid vessels, and when the lobe projects upward and well backward, we find, when we have drawn it down, that we have put the vessels on considerable tension, and there is danger of the vessel escaping from the ligature or clamp, with excessive hemorrhage. After the superior vessels are ligated it loosens up the gland and allows it to be displaced forward, and then we proceed to ligate the inferior artery. He never ligated this vessel in continuity of the main artery, but it should always be ligated inside of the capsule after the vessel has subdivided into its branches. He has never been able to determine just how much of the gland to remove. We remove a certain portion of the gland, but if we do not remove quite enough the patient will not be cured.

Dr. Daniel N. Eisendrath emphasized the importance of ligating the superior thyroid artery. In large goiters of long standing we are confronted by a trachea which is pathological. It is pushed over to one side. In either case it is pushed backward or deeper, so that a considerable part of the rings of the trachea may be atrophied, and not infrequently there is asphyxiation following the removal of large goiters.

Dr. D. W. Graham said he had never operated on a case of goiter under local anesthesia, and would feel averse to trying it. He knew he could do better, quicker and safer work under general anesthesia. He had found the greatest trouble with the small goiters. He was never much concerned about accidents

and complications in large goiter, but he was in small ones that did not stand out much. They were always larger and deeper than they looked to be.

Dr. Steele, in closing, said that in all cases of exophthalmic goiter that failed to show continued improvement under medical and other treatment, a partial thyroidectomy should be done.

Regular Meeting, April 2, 1909.

A regular meeting was held April 2, 1909, with the president, Dr. A. E. Halstead, in the chair.

SOME OF THE PRINCIPLES OF INTESTINAL SUTURING.

Dr. F. Gregory Connell, of Oshkosh, Wisconsin, read a paper on this subject. The points which the author considered concerned chiefly the technical phase of intestinal suturing. Innumerable other conditions, he said, would be met with before, during and after operation, that would demand deep study. A knowledge as to these points, and the ability to arrive promptly at the correct decision was of equal importance with technical skill, for the reason that a false step or conclusion regarding any one of them might render futile a technically perfect enterorrhaphy. Such knowledge demanded a high degree of something called surgical judgment, which could only be acquired after extensive experience, founded upon a comprehensive understanding of pathology in all its branches. And it was just this surgical judgment that elevated the intestinal surgeon above a mere tailor of human tissue.

DISCUSSION.

Dr. John E. Owens said he had used the ordinary suture with a good deal of satisfaction, but not the through and through suture. He was very glad to hear from Dr. Connell that this was a safe suture to use. It was certainly a method which strongly maintained the ends in approximation without any great risk.

Dr. Jacob Frank said that the essayist claimed for the diaphragm a purpose with which he could not agree. When the suture method first came out this diaphragm was considered a bad thing and I was against suturing. Now, Dr. Connell thought it prevented infection. He disagreed with him in that respect. The speaker's experience with the suture method had been mainly in side to side anastomosis; that the diaphragm in a dog, whose intestines were not completely emptied, the fecal current would go against the diaphragm and often stop there, and if there happened to be a piece of bone in the dog's intestine there would be obstruction from that. He agreed that the Connell suture was a very good thing and was giving good results; but it was not an ideal method.

Dr. T. J. Watkins said he was very fond of the Connell suture. He thought the point made by the essayist in regard to the diaphragm was well taken, in that this diaphragm remained for a few hours until there was a plastic exudate at the seroseros approximation; then, after that the action of diaphragm in regard to protection or in regard to any danger could have but little importance. The diaphragm very soon atrophied or became necrotic.

Dr. A. E. Halstead remarked that two years ago last February he operated upon a case of obstruction due to cancer of the descending colon. The ileus was not due to the primary growth in the colon, but to an angularity of the small intestine produced by adhesions of a loop of intestines to the growth in the colon. Double resection was performed, the Connell suture being used to unite the divided ends of the intestine. The patient recovered, but later developed metastasis in the liver, and died a few days ago. An autopsy was made and the intestine examined. It was with difficulty that the site of the resection could be found. There was no sign of the diaphragm that had received so much attention; neither was there any constriction of the lumen of the intestine.

Dr. Connell, in closing, said that intestinal obstruction due to the diaphragm should never occur with properly placed stitches. There was a case on record in which a Murphy button was inserted above an enterorrhaphy, causing such a diaphragm, and the button passed uneventfully at the usual time.

KRAUROSIS, WITH REPORT OF A CASE.

Dr. Jacob Frank read a paper on this subject. He carefully reviewed the literature. The etiology was obscure. The disease was most common at or about the menopause, but might occur earlier or later. Cases from sixteen to seventy-two years were reported. The pathology and bacteriology of the disease were given. From fifty-two cases reported since 1875 the author concluded, with Reed, that kraurosis is a distinct disease. It is rare. It is essentially inflammatory and limited to the vulva. It is not syphilitic. It is probably trophic. Affected areas can be successfully excised.

Dr. Frank then detailed the operation he had performed in the case of a married woman, 28 years of age, with a gratifying result.

DISCUSSION.

Dr. T. J. Watkins had seen a number of cases where there was considerable pathology about the vulva, such as the essayist had described. One very noticeable case was where the ovaries were removed from a woman, about thirty-two years of age, which was followed by extreme atrophy. The atrophy was so extensive and contraction so great, that when she came under his observation the vaginal opening would hardly admit anything larger than a good sized lead pencil. All of the pathology that had been given and all of the sections that had been illustrated were found in infections of the vulva. The round-cell infiltration indicated very much that it was an infection. Another thing that pointed to the disease being an infection was the frequency of pruritis, the presence of an irritating discharge. Later on this pruritis might disappear as the atrophy continued and the nerve endings were destroyed.

Dr. Frank, in closing, said that, like Dr. Watkins, he thought before he saw this case this disease did not exist, but now he was convinced of its existence, although he did not clearly understand its pathology.

FULTON COUNTY.

The Fulton County Medical Society held its forty-eighth meeting in Dr. Shallenberger's office, Canton, Ill., July 6, 1909. The meeting was called to order by the first vice-president, Dr. F. C. Robb. The following members were present: Drs. Robb, Coleman, Putnam, Blackburn, Connelly, Oren, Stoops and Shallenberger. Dr. Stoops was appointed secretary pro tem. The society proceeded without the minutes of the previous meeting. The following were elected to membership: Drs. Jennie W. Parks, of Cuba; G. C. Black, of Table Grove; R. W. Harrod, of Avon, and C. N. Allison, of Canton. General discussions followed on the question of contract practice, but no action was taken, as it was considered best to postpone same to October meeting. Dr. Shallenberger, in discussing the attitude of representatives in misrepresenting the interests of the physicians at Springfield, suggested that the physicians of this district make a united effort to elect one of their profession as state senator and one as representative. Dr. Connelly moved that the October meeting be made a business meeting to settle the contract practice question and matters pertaining to the work of the legislative committee and that the secretary send special notice of this arrangement to each member of the society. On Dr. Coleman's second the motion was carried. Drs. Rogers and Barton not being present, Dr. Robb read a paper on "Infection." This was discussed by Drs. Stoops, Coleman and Robb. A motion that the society extend to Dr. Shallenberger its thanks for the use of his office as a meeting place and for cigars generously furnished was carried. A motion that the papers of Drs. Barton and Rogers be continued and presented at the December meeting was made by Drs. Shallenberger and Simmons. Carried. Dr. Shallenberger moved that the acting president, Dr. Robb, the acting secretary, Dr. Stoops, and the second vice-president, Dr. Coleman, be a program committee to arrange the program for the October and December meetings. Carried.

The committee reported the following program for the December meeting: Dr. J. S. Barton, "Veratrum Viride;" Dr. H. H. Rogers, "Substernal Abscess;" Dr. J. C. Simmons, "Pneumonia;" Dr. J. E. Coleman, "Gall Bladder Infection." Report was adopted. The meeting then adjourned.

P. H. STROOPS, Sec. Pro Tem.

LAKE COUNTY.

The meeting was held in the Town Hall at Grayslake, Illinois, on June 3, 1909. In the absence of the president of the Society, Dr. I. C. Foley, Dr. E. H. Ames of Antioch occupied the chair. This meeting was our annual meeting and we proceeded at once with the election of officers. The following officers were elected for the ensuing year: Dr. J. L. Taylor of Libertyville was elected president; Dr. E. H. Ames of Antioch, vice-president; Dr. W. H. Watterson of Waukegan, secretary. The following applications were then acted upon by the Board of Censors: Dr. Frederick H. Martin and Dr. A. H. Churchill, of Libertyville; Dr. W. N. Clark, of Grayslake; Dr. Martin E. Fuller, of Wauconda; Dr. Margaret Grant and Dr. J. F. Roemer, of Waukegan. The Board of Censors recommended for membership all the applicants except the last one, whose application could not be acted upon because he had scratched out the last clause of the application blank, therefore taking the matter out of the hands of the County Society to act on. On vote of the Society all of the above named doctors, except the last mentioned, were elected to membership of the Lake County Medical Society.

The report of the Society's efforts against the Osteopathic Bill, recently lost in the legislature, was then read. The program was then taken up and consisted of a paper by Dr. J. L. Taylor on Peritonitis. It was a most careful review of modern literature and personal experience with this subject. The papers by Dr. A. E. Brown on "Gastroenteritis" and F. M. Barker on "Infant Feeding" were not given on account of the absence of the writers. The paper on "Medical Ethics," by Dr. L. H. Tombaugh was a most excellent paper and gave a history of the subject, after which the Oath of Hippocrates was read. Then, "More Recent Work Done by Men and Societies" was spoken of and the actual purpose of the code for to-day was given. "Relations of the Patient," "Relations of the Doctor to the Public," "Pecuniary Relation," "Fees," "Fee Splitting," were all referred to and the paper ended up with a number of very good axioms that should be followed by every physician. The subject was freely discussed by several of the members present. The report of the State Medical meeting at Quincy was then read by our delegate, Dr. W. C. Bouton, and the subject of "The Cure of the Poor in Lake County" was then discussed and a committee consisting of Drs. Tombaugh, Bouton and Watterson was appointed to devise ways and means of placing the matter before the Board of Supervisors. The following doctors were present: Tombaugh, Bouton, Bellows, T. C. Brown, Holm, Clark, Ames, Taylor, Churchill, Martin, Fuller, Palmer, and Watterson. Meeting adjourned to meet in September.

MORGAN COUNTY.

Morgan County Medical Society met June 13, 1909, at Public Library, Jacksonville, Illinois, Dr. A. J. Ogram presiding. Dr. A. L. Adams reported a case of Bezold's Mastoiditis. Patient complained of pain for a week, no discharge. Edema along the sternocleidomastoid, tenderness, fever, and continuous pain. Head held in position to take off tension on affected side. Facial expression of acute suffering, membrane reddened. Incision of drum showed some bloody discharge but no pus, brought relief. On entering mastoid area at time, pus welled up. Cellulitis of neck had been produced by extension of infection from tip.

Dr. E. F. Leonard presented an interesting paper on "Dementia Præcox; Typical Cases, Treatment and Prognosis." In treatment much can be accom-

plished in the way of prophylaxis by intelligent child study on the part of the physician. He should be on the lookout for psychopathic personalities and should guide these through the throes of adolescence and our system of forced education. Wrong tendencies should be righted. Marriage of these personalities should not be encouraged. A nourishing, well-regulated diet, avoidance of stimulants, physical and psychic. Regular hours of exercise and plenty of rest and sleep. The out-of-door, simple life is to be recommended. Tonics, hydrotherapy, hot packs for agitated cases, cold stimulating douches and baths for those inclined to negativism and stupidity should be given.

As to prognosis of the different forms, the katatonic offers the best chance for recovery, then the hebephrenic and paranoid. Where more care can be given individual cases results are better. Correction of functional abnormalities, establishment of a regime of living with out door life and work, tend to postpone and diminish the characteristic deterioration process.

The discussion of Dr. Leonard's paper was led by Dr. E. L. Crouch.

GEORGE STACY, M.D., Secretary.

The Morgan County Medical Society met July 15, 1909, at Passavant Hospital for a clinical session.

Dr. Frank P. Norbury showed a case of transverse lesion of the cord at the level of the second lumbar vertebra. The original lesion was due to intramedullary hemorrhage.

Dr. T. O. Hardesty exhibited a patient with an extensive tubercular lesion of the ankle.

Dr. Carl E. Black demonstrated a case of peritoneal abscess from which about four gallons of pus had been evacuated and extensive multiple drainage established. The lower abdominal viscera in this case had been shoved by nature practically into one-quarter of the general abdominal cavity.

After the clinic, adjournment was taken to the Pacific hotel for luncheon.

Dr. Duncan R. Gillies and Dr. Ralph T. Hinton were elected to membership in the society at this session.

GEORGE STACY, M.D., Secretary.

TAZEWELL COUNTY.

At a meeting of the Tazewell County Medical Society, held at Morton, Ill., July 20, the following were elected to serve another year:

President—Dr. C. G. Muehlmann, Pekin.

Vice-President—E. F. Kelchner, Delavan.

Secretary—F. C. Gale, Pekin.

The next meeting will be held at Delavan, Ill., Oct. 12, 1909.

C. G. MUEHLMANN, President.

NEWS OF THE STATE

PERSONAL.

Dr. Joseph Robbins, Quincy, is still seriously ill in Blessing Hospital.

Dr. and Mrs. George Edwin Baxter of Chicago sailed for Europe July 24.

Dr. Albert J. Ochsner has been elected president of the Wisconsin University Alumni Association.

Dr. W. T. Stewart and wife of 978 Douglas boulevard are spending July and August near St. Joe, Mich.

Dr. and Mrs. E. Wyllys Andrews, Dr. and Mrs. Nathan S. Davis and family, Dr. Edmund J. Doering, and Dr. Edward Luehr have gone to Europe.

Dr. Anton G. Carlson has been appointed professor of physiology and Dr. H. Gideon Wells has been appointed professor of pathology in the University of Chicago.

Dr. George W. Boot, Evanston; Samuel M. Wylie, Paxton; John F. Page, Eureka; William B. Peck, Freeport, and Thomas H. Wagner, Joliet, have sailed for Europe.

NEWS ITEMS.

Dr. G. R. Cowan, of Normal and Girard, Ill., has located in Murphysboro, Tenn.

The Hospital Aid Society of Monmouth, at its session June 16, voted \$1,000 to the building fund.

Dr. Arthur D. West, Moline, underwent an operation for appendicitis, July 19, at the City Hospital.

A. A. Mertz, a recent graduate of Ann Arbor, has accepted a position as interne at the Springfield Hospital.

Dr. R. Helmla, of Onarga, has returned from Vienna, where he did special surgical work in the General Hospital.

Dr. T. W. Bath, Bloomington, has been elected surgeon of the Department of Illinois, United Spanish War Veterans.

About \$3,000 was cleared for the proposed Lake Forest Hospital for contagious disease at the annual horse show July 2-3.

Dr. J. R. Neal, Dr. W. S. Crowley and Dr. E. L. Barnard, recent graduates of Northwestern University, are practicing in Springfield.

Dr. Edward W. Stubbs, Aurora, physician of Kane County, was slightly injured and his carriage destroyed in a runaway accident in Aurora July 19.

Dr. Charles F. Barstow, Freeport, accused of having performed an illegal operation which caused the death of Miss Janette Reider, was declared not guilty by the jury.

Dr. W. W. Pearson, of Des Moines, Iowa, has been elected dean of the Medical Department of Drake University of Des Moines. Dr. Pearson lived for many years in Springfield, Ill.

Dr. W. R. Miller, of Creseent City, Ill., was arrested July 12 and taken to Kankakee County jail, charged with the murder of Mr. J. B. Saylor, vice-president of the First National Bank of Creseent City.

The new addition to St. Joseph's Hospital, Bloomington, recently erected at a cost of about \$75,000, was opened for public inspection June 19-20. The addition includes about seventy rooms and wards.

Dr. E. A. Weimer, of Peoria, was recently fined \$100 and costs in the U. S. Court by Judge Humphrey. Dr. Weimer is said to have annoyed a prominent Peoria woman with letters and postal cards sent through the mail.

The Jewish Consumptive Relief Society dedicated its building for female patients June 27. The building has been presented to the Chicago Winfield Tuberculosis Sanatorium and will accommodate 10 patients.

Dr. M. W. Thompson was recently sued in the Superior Court of Chicago by Lillie Bell for \$25,000, who alleged injuries as a result of conditions following the setting of a bone in her leg in such a way that she became lame.

Dr. Joseph Favil Bieln was suspended from the position of director of the laboratories of the health department of Chicago on July 31 by Health Commissioner W. A. Evans, pending the filing of charges before the civil service commission.

Dr. Byron Robinson has started suit for damages against Dr. Clara Seippel, claiming that she circulated a libel against him. Dr. Seippel declared that, as an attending physician of the Mary Thompson Hospital, she protested to the board of managers against the appointment of Dr. Robinson on the consulting staff.

Dr. M. D. Foster, of Olney, one of the few physicians in the national House of Representatives, recently introduced a resolution creating a standing house committee to be known as the Committee on Public Health and National Quarantine to be composed of fifteen members. He would have all legislation representing public health and federal quarantine referred to this body in the future.

The new scheme of house numbering in Chicago will be in effect under the ordinance September 1. With the exception of the business district north of Twelfth Street and east of the river, houses on all streets crossing Madison Street or Madison Street extended will be numbered from Madison Street, 800 to the mile, and be called North and South. Streets crossing State Street or State Street extended will receive numbers beginning at State Street, 800 to the mile, and be named East

and West. Where streets only theoretically cross the extensions of Madison and State streets in the lake, the designations South and West are unnecessary. The city address of THE JOURNAL will be changed from 1916 to 4603 Evanston Avenue.

PUBLIC HEALTH.

The Department of Health of Chicago has issued an illustrated poster entitled "Speaking of Flies," the text of which is four-fold and is as follows:

"Don't allow flies in your house."

"Don't permit them near your food, especially milk."

"Don't buy foodstuff where flies are tolerated."

"Don't eat where food has been exposed to flies."

The six Chicago women inspectors of the health department were put into uniform by a special ordinance of the City Council. It consists of a dark blue suit, black straw hat in summer and felt in winter, relieved by a single feather. A short jacket is worn in cool weather, and a white shirt waist in summer. The handsome red-cross star completes an attractive costume.

The Board of Health of Springfield in June published a monthly bulletin which includes not only the state of mortality as previously published but sanitary suggestions which ought to prove a valuable addition. The *Springfield News*, June 10, has the following to say regarding the innovation: "Springfield people are commenting favorably upon the plan of Dr. Palmer to issue a monthly health *Bulletin*, the first number of which appeared yesterday. The *Bulletin* will keep the public fully informed as to the sanitary conditions of the city and will contain the doctor's recommendations for improvement. It will be much broader in its scope than the "Statement of Mortality" of former superintendents of the health department, its purpose being to educate the people in the matter of healthful living as well as to tell them how many deaths have occurred from certain causes during the month. If bad conditions exist in certain parts of the city, the *Bulletin* will advise the citizens of the best and quickest way to remedy the evil. In every way Dr. Palmer will seek to safeguard the health of the city and to encourage the public to assume its share of the responsibility.

For the first time in many years Springfield has a physician, instead of a politician, at the head of its health department, and the city is to be congratulated upon the innovation. A doctor, better than one from any other profession or calling, is competent to do the work of this important department, and what he has to tell the people from month to month may be accepted by the people as coming from one of authority. The public should cooperate with the doctor in all his endeavors. His recommendations will be worthy of consideration and his advice the kind that should be followed."

According to the *Bulletin* of July 24, "The city of Chicago is to be congratulated upon the outcome of the recent, more rational Fourth of July celebration.

Three weeks have now elapsed and we can safely conclude as to the effects of this variety of observance.

There has been but one death from tetanus during the last three weeks and that was not due to a Fourth accident. Last year in the same time there were four.

This saving is due to three factors:

First—The use of safer explosives.

Second—The lessened use of explosives.

Third—The freer use of tetanus antitoxin as a preventive measure.

We have not been able to trace a single death directly to explosives used on this occasion. The two Chicago deaths carried in the Chicago papers are but remotely connected with explosives. One was due to a runaway, in which the horse had been frightened by a cracker. The other was caused by an engine running to a fire caused by an explosive.

The police should be thanked, the people congratulated."

A fourth building was added to the plant of the Chicago-Winfield Tuberculosis Sanitarium at Winfield, Ill., as the result of a gift of \$5,000 from Mrs. Amanuel Mandel.

Officers were elected for the year as follows: Charles A. Stonehill, president; Mrs. Emma B. Mandl, vice-president; David M. Pfaelzer, treasurer; Mrs. B. M. Englehard, recording secretary; Mrs. M. L. Aren, corresponding secretary; Max Lindauer, financial secretary.

Evanston has received a fund of \$585, to be known as the Kate Lord Memorial Fund, the income of which is to be used as the directors of the hospital may direct until a contagious department can be established with it and additional funds. Miss Lord was a nurse in an eastern hospital at the time of her death.

MEDICAL SOCIETY NOTES.

The regular meeting of the Rock Island Medical Society was held at the Manufactures hotel in Moline. Supper was served at 7 o'clock, followed by a short business session. A paper on "Our County Medical Society," prepared by Dr. W. H. Ludwig, was read by the secretary, Dr. W. D. Snively. Dr. Hollowbush presented a report of the meeting of the State Medical Society.

Fifteen members of the Lake County Medical Society addressed a petition to the supervisors protesting against the continuance of the plan followed the last six months of engaging one physician to attend to all the county poor at the rate of \$200 for six months. They made the following suggestions: First—Appropriate a certain sum, say, \$5,000, for medical services and medicine for the poor of the county for one year. Second—Have no one man or two men appointed to do this work, but let every poor person have the choosing of his own phy-

sician. Three—At the end of the year divide this appropriated sum pro-rata among the doctors who have had indigent patients, provided that no one doctor receives more than 5 per cent. of such appropriated sum. Four—Let all hospital bills be paid in full out of said appropriation before the pro-rata division to the doctors is made.

(Signed)

L. H. TOMBAUGH.
W. C. BOUTON.
W. H. WATTERSON.

CHANGE OF LOCATION.

Dr. John T. Myers has left for Petersburg, Ill.
Dr. Loran E. Orr has removed from Hull to Tallula, Ill.
Dr. A. L. Kasburn has removed from Adrian to Ferris, Ill.
Dr. W. G. Dufour has removed from Oquawka to Chenoa, Ill.
Dr. W. G. McDeed has removed from Newton to Sterling, Ill.
Dr. William Patch has removed from Emington to Coleta, Ill.
Dr. E. C. Duncan has removed from Flora, Ill., to Vincennes, Ind.
Dr. G. M. Tyrrell has removed from Elizabeth to Scales Mound, Ill.
Dr. J. P. Miller has removed from Chalfin Bridge to Valmeyer, Monroe County, Illinois.

Dr. Frederick H. Martin, of Libertyville, Ill., has left this location and will locate in Colorado or west.

MARRIAGES.

GEORGE TANKERSLEY, M.D., of Owaneco, Ill., to Miss Grace E. Piper July 25.

KARL A. DANELL, M.D., to Miss Matilda Eliason, both of Chicago, June 24.

ORMAND E. HUTCHINS, M.D., to Miss Gene J. Fairfax, both of Warsaw, Ill., July 7.

CHARLES M. ALLISON, M.D., Canton, Ill., to Miss Fern Barnes of Paulding, Ohio, May 1.

CHARLES E. SCULLIN, M.D., Peoria, Ill., to Miss Grace Barracks, at Franklin, Ind., June 22.

WILLIAM H. STRENG, M.D., of Spring Grove, Ill., to Miss Ada Richardson of Richmond, Ill.

ERWIN STANER HOTTINGER, M.D., Chicago, Ill., to Miss Estelle M. Flannagan of St. Louis, June 19.

WALTER T. VENN, M.D., to Miss Maude Eagleston, both of Aurora, Ill., at Crown Point, Ind., June 16.

THOMAS POLLOCK RANNEY, M.D., Chicago, to Miss Bertha Kuehn, of Eveleth, Minn., at Duluth, June 26.

ROBERT ELLIOTT GRAVES, M.D., and Miss Angeline Loesch, both of Chicago, June 30, 1909, at Spring Lake, Mich. Residence after Nov. 1, 52 Hazel Avenue.

DR. E. L. H. BARRY and Mrs. Eletta Windsor, prominent Jerseyville people, eloped to Alton Wednesday, June 23, and were married. Dr. Barry confesses to 65 years and his bride to about 50.

DEATHS.

SIDNEY L. FULLER, M.D., Chicago Medical College, 1861; died at his home in Chicago, June 16, from uremia, aged 71.

B. F. DARBY (License, years of practice, Ill., 1878) died at his home in Paris, Ill., March 4, from paralysis, aged 82.

NELSON P. WALTERS, M.D., National Medical University, Chicago, 1905; died at his home in Evanston, Ill., June 24.

JOHN R. SMITH, M.D., Eclectic Medical Institute, Cincinnati, 1881; died at his home in North Carmi, Ill., June 27, aged 59.

JOHN W. STONE (License, Ill.; years of practice, 1877) died at his home in Springerton, Ill., January 11, from paralysis, aged 68.

WILLIAM ANDREW CHATTERTON, M.D., a homeopathic practitioner of Elgin, Ill.; died in that city May 26 from angina pectoris, aged 68.

SIMON JUMPER, (License, Ill.; years of practice, 1877) died at his home in Marshall, Ill., Nov. 9, 1908, from heart disease, aged 82.

JAMES McRUARK, M.D. McDowell Medical College, St. Louis, 1852; died at his home in Willisville, Ill., Jan. 20, 1908, from senile debility, aged 84.

LEVI W. CARTER, M.D., Hahnemann Medical College, Chicago, 1871; of Peoria; died at the Proctor Home in that city, June 23, from paralysis, aged 74.

SENECA D. E. GURNEY, M.D., Memphis (Tenn.) Medical College, 1854, was shot and killed by his insane son at his home in Quincy, Ill., June 27, aged 79.

MELVIN F. HOWE, M.D., Hahnemann Medical College, Chicago, 1888; of Lake Charles, La., died at the home of his brother near Marion, Iowa, July 5, aged 43.

JOHN EVANS TUTTLE, M.D., Rush Medical College, Chicago, 1868; formerly a practitioner of Myersville, Ill., died at his home in Danville, Ill., Nov. 20, 1908, from angina pectoris, aged 68.

MONROE S. LEECH, M.D., Eclectic Medical Institute, Cincinnati, 1871; Rush Medical College, Chicago, 1882; a veteran of the Civil War; died at his home in Chicago, June 24, from nephritis, aged 61.

JOSHUA SWIGERT, M.D., Washington University, Baltimore, 1863; formerly of Brazil, Ind., died in the Cook County Institution, Dunning, Ill., May 3, from exhaustion, due to chronic morphinism, aged 71.

GEORGE M. FOX, M.D. Castleton (Vt.) Medical College, 1851; once president of the board of trustees of La Grange, Ill.; from 1864 to 1866 physician of Cook County; died at his home in La Grange, July 14, aged 80.

ALEXANDER WILEY MCCLINTOCK, M.D., Miami Medical College, Cincinnati. 1895; formerly of Cisna Park, Ill.; some time member of the Ford-Iroquois Medical Society; died at his home near Phoenix, Ariz., June 27, from tuberculosis, aged 42.

SEBERN J. LAYMAN (License, Ill.; years of practice, 1878); assistant surgeon of the Eighteenth Illinois Volunteer Infantry during the Civil War; local surgeon at Tamora for the Illinois Central Railroad for many years; died at his home June 27, aged 72.

JOHN GROVE SPEER, M.D., Transylvania University, Lexington, Ky., 1830; for a time probate judge of Macon county, Illinois, and a resident of Decatur, Ill., and later a practitioner of Floyd'sburg, Ky., died at the home of his son in Alton, Ky., from influenza, May 2, aged 100.

Y. D. SCALES, M.D., of Springfield, Ill., died July 21, 1909, at the St. John's Hospital, aged 65 years. Dr. Scales served as surgeon in the Confederate Army and had practiced at Roodhouse, Lincoln, Va., and Springfield, Ill. He was never connected with any local medical society.

WILLIAM M. TOMLINSON, M.D., Transylvania University, Lexington, Ky., 1849; of Wilmette, Ill.; at one time a member of the Chicago Board of Health and a member of the local board of United States Pension Examining Surgeons; was run over by a train at Wilmette and killed June 28, aged 81.

LUCIAN LAVASSA LEEDS, M.D., Rush Medical College, Chicago, 1856; a member of the American Medical Association and Brainerd District Medical Society; for fifty-seven years a practitioner of Illinois; city councilman of Lincoln; for twenty-six years a member of the board of education, and for twelve years its president. died at his home in Lincoln, June 19, aged 78.

JOHN WRIGHT, M.D., Medical College of Ohio, Cincinnati, 1854; formerly of Clinton, Ill., a member of the American Medical Association; charter member of the Dewitt County (Ill.) Medical Society; a life member of the Illinois State Medical Society and its president in 1890; surgeon of the One Hundred and Seventh Illinois Volunteer Infantry, and later brigade and division surgeon during the Civil War. died at his home in Long Beach, Cal., May 21, from heart disease, aged 83.

JOSEPH ROBBINS, M.D., Jefferson Medical College, Philadelphia, 1861; a member of the Illinois State Medical Society; once president of the Adams County Medical Society; a member of the Tri-State Medical Society; for several years a member of the Quincy Board of Education; from 1901 to 1902 superintendent of the Jacksonville (Ill.) State Hospital; physician and surgeon to Blessing Hospital, Quincy, and president of the medical staff; formerly president of the Quincy Medical Library Association; of Quincy, Ill.; died at Blessing Hospital in that city July 20, 1909, from cancer, aged 75 years. Dr. Robbins had suffered for several years with cancer of the rectum and bore his affliction with remarkable fortitude. Dr. Robbins had not only been prominent in medicine, but was an authority in Masonic lore and a politician of state wide

renown. He was a candidate for governor against John R. Tanner in 1906. He served as superintendent of the insane hospital at Jacksonville, Ill., for about one year in 1901. He presented his library recently to the Adams County Medical Society. Practically his whole personal life had been spent at Quincy, where he was greatly beloved as a physician and citizen.

Book Notices.

ANNALS OF SURGERY.

This valuable surgical journal inaugurates its fiftieth volume by the production of an edition of 366 pages containing 26 original memoirs read at the last meeting of the American Surgical Association. The character of the papers and the form in which it is issued makes this one of the most interesting surgical journals ever issued from the American press. The "Annals of Surgery" easily stands first in the world as the best publication exclusively devoted to surgery.

THE AMERICAN POCKET MEDICAL DICTIONARY. New (sixth) edition. Edited by W. A. Newman Dorland, M.D. 32mo of 598 pages. W. B. Saunders Company, 1909. Flexible morocco, gold edges, \$1.00 net.

So rapidly have new terms been introduced into the science of medicine that such a volume as is offered by W. B. Saunders Company becomes a necessity to every practitioner who would keep abreast of the times. This dictionary is strictly up to date and worthy of commendation.

SAUNDERS' POCKET MEDICAL FORMULARY. By William M. Powell, M.D., of Philadelphia. Ninth edition, thoroughly revised and enlarged and adapted to the eighth revision of the U. S. Pharmacopeia. W. B. Saunders Company, 1909.

THE POCKET FORMULARY. By E. Quin Thornton, M.D., Philadelphia. Ninth edition. Lea & Febiger, Philadelphia and New York.

These two pocket formularies are similar in size and value and each complements the other in many particulars so that both of them will be found valuable to the busy practitioner who has heretofore possibly obtained his therapeutic hints from the advertising matter supplied by proprietary houses. Many valuable therapeutic hints will be found in both of these volumes, and we recommend either or both of them highly to our readers.

HANDBOOK OF DISEASES OF THE RECTUM. By Louis J. Hirschman, M.D., Detroit, Mich., with 147 illustrations, mostly original, including two color plates. C. V. Mosby Medical Book and Publishing Company, St. Louis, 1909. Price, \$4.00.

In this volume of 375 pages Dr. Hirschman has collected all of the latest data concerning diseases of the lower bowel, including a consideration of the parasites which inhabit that portion of the intestinal tract. All the latest methods of examining and operating on the diseases of this region are carefully described and illustrated in this book.

MYOMATA OF THE UTERUS. By Howard A. Kelly, M. D., Professor of Gynecologic Surgery at Johns Hopkins University, and Thomas S. Cullen, M.B., associate. Large octavo of 700 pages, with 388 superb original illustrations by August Horn and Hermann Becker. Philadelphia and London: W. B. Saunders Company, 1909. Cloth, \$7.50 net; half morocco, \$9.00 net.

This latest work from the Department of Gynecology of Johns Hopkins University is a worthy successor to the magnificent publications which have preceded it both in the completeness of considering the subject, descriptive matter and illustrations. The work is without a parallel in any language. No one pretending to do abdominal surgery can afford to be without this volume.

BIER'S HYPEREMIC TREATMENT. By Willy Meyer, M.D., and Prof. Victor Schmieden. The new (second) edition, enlarged. Octavo of 280 pages, illustrated. W. B. Saunders Company, 1909. Cloth, \$3.00 net.

Professor Meyer, in his second revised edition of this work, has had the valuable assistance of Professor Schmieden, Professor Bier's assistant at the University of Berlin. No detail of practice has created more interest than has the hyperemic treatment so fully developed by Professor Bier, and its application in all departments of medicine and surgery is thoroughly outlined in this new and enlarged edition. Probably the newest application is its use in the treatment of seasickness by the application of an elastic band around the head. Our readers will find this work satisfactory in every way.

VACCINE AND SERUM THERAPY. By Edwin Henry Schorer, B.S., M.D., Assistant Professor of Parasitology and Hygiene, University of Missouri. Illustrated. C. V. Mosby Co., St. Louis, 1909. Price, \$2.00.

This work is thoroughly up-to-date and important to the average practitioner who needs just the information contained in it for the intelligent administration of the newer forms of therapy. It gives an independent view of the value of the serum and vaccine not influenced by the statements and recommendations common to proprietary laboratories, enthusiasts and exploiters. Considerable space has been given to opsonins, the opsonic index and the importance of opsonins in health and disease. This work will furnish to the medical student and practitioner information which may lead him to a better understanding of the nature of infections and the subjects of immunity and active and passive immunization.

TUBERCULOSIS. A Preventable and Curable Disease. Modern methods for the solution of the tuberculosis problem. By S. Adolphus Knopf, M.D., New York; with 115 illustrations. Svo. Price, \$2.00 net. Moffat-Yard & Co., New York.

This volume of nearly 400 pages has as a frontispiece a photograph of Professor Robert Koch, the German scientist, who was the founder of modern phthisio-therapy by becoming the discoverer of the cause of the disease. This work appeals to all classes of citizens and should receive a hearty welcome from the profession, from statesmen, philanthropists and noble men and women everywhere who by their unselfish labors will be able to assist in wiping out the disease. The price of the work is extremely reasonable and we are glad that the author believes the ultimate eradication of tuberculosis is in sight. Such a book as he has written will do much to bring about that delightful consummation.

DIET IN HEALTH AND DISEASE. By Julius Friedenwald, M.D., Professor of Diseases of the Stomach in the College of Physicians and Surgeons, Baltimore, and John Rührh, M.D., Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore. Third revised edition. Octavo of 764 pages. Philadelphia and London: W. B. Saunders Company, 1909. Cloth, \$4.00; half morocco, \$5.50 net.

"Our aim has been to make a practical handbook for every day use, and to this end have included material from many sources, all of which we trust has been duly acknowledged in the text. The articles on milk and alcohol have been rewritten, and additions made to the articles on tuberculosis, the salt-free diet, rectal feeding, the caloric needs of infants, and others too numerous to mention. Several useful tables, showing the caloric value of foods, have been added, as well

as Winton's valuable table showing the composition of diabetic foods. We have also inserted a short account of the simpler methods used to detect certain food adulterations and preservatives."

THE PRACTICAL MEDICINE SERIES, comprising ten volumes on the Year's Progress in Medicine and Surgery. Under the general editorial charge of Gustavus P. Head, M.D., Professor of Laryngology and Rhinology, Chicago Post-graduate Medical School. Volume I, General Medicine. Edited by Frank Billings, M.S., M.D., head of the Medical Department and Dean of the Faculty of Rush Medical College, Chicago, and J. H. Salisbury, A.M., M.D., Professor of Medicine, Chicago Clinical School. Price \$1. Volume II, General Surgery. Edited by John B. Murphy, A.M., M.D., LL.D., Professor of Surgery in the Northwestern University, Attending Surgeon and Chief of Staff of Mercy Hospital, Wesley Hospital, St. Joseph's Hospital and Columbus Hospital, Consulting Surgeon to Cook County Hospital and Alexian Brothers Hospital, Chicago, Ill. Chicago: The Year Book Publishers. Price \$2.

The volumes are two of a series of ten issued at about monthly intervals and covering the entire field of medicine and surgery, each volume being complete for the year prior to its publication on the subject of which it treats. Price of the series of ten volumes, \$10.00. This series is published primarily for the general practitioner; at the same time the arrangement in several volumes enables those interested in special subjects to buy only the parts they desire.

MEDICINE IN CHAMPAIGN COUNTY. A historical sketch by Charles B. Johnson, M.D. Fiftieth anniversary souvenir edition of Champaign, Ill., 1909, Gazette-Press, Champaign.

Dr. C. B. Johnson, of Champaign, has done a great work for the history of medicine in his county on the occasion of the fiftieth anniversary of the county society by assembling the photographs of the majority of the practitioners who have ever been located in that county with biographical sketches, in a paper covered book of 83 pages. Champaign county has been fortunate in having a large number of active, influential, patriotic and devoted medical men who have shed lustre on the place of their residence and the profession with which they were identified. Among them has been Dr. Alexander T. Darrah, president of the state society in 1882; Dr. Johnson himself, who has been a member and president of the State Board of Health of Illinois; Dr. James Core, a member of the legislature, to say nothing of those who served valiantly as surgeons in the war of the rebellion and in various public offices before and since that time. The publication of this history has been a labor of love on the part of Dr. Johnson which might well be imitated by some one in every county in the state, and if this were done, a great deal of valuable historical material would be assembled for the coming generations, which otherwise would be forever lost. We hope that every county society in the state will take up this matter and elect a historian at once to issue such a book as did the Champaign county society.

DANIEL DRAKE AND HIS FOLLOWERS. Historical and biographical sketches by Otto Juettner, A.M., M.D. Royal 8vo; pages, 496; illustrated. Price, \$5. Harvey Publishing Company, Cincinnati, 1909.

Daniel Drake, pioneer, author, founder of medical colleges, professor in five different schools in four different states, traveler over the entire Mississippi Valley, poet, fighter, an intensely interesting character in many ways, is here depicted by Dr. Juettner in a volume of nearly 500 pages, which includes sketches of a majority of the medical men who have practiced in Cincinnati and Ohio and several adjoining states and makes a volume of intense interest to any one who cares for the medical history of the West.

There are scores of medical men practicing in Illinois who received their education in Cincinnati who will read this work from the first to the last page with

avidity. The book itself is a model in nearly every way of what a history of a medical center should be. Fortunately, a great many of the characters depicted lived long enough ago to be spoken of impartially. The strength, the weakness, the peculiarity, the hopes, aspirations and failures of each are drawn with a facile pen.

The establishment of medical education in the West has many of the features of a romance tintured with tragedy, comedy and farce of the broadest nature.

Drake, after founding the Medical College of Ohio, was, two years later, expelled from his own school and practically never secured a place again, although, for a short period, he lectured in the college. Some of his best work was done in Lexington and Louisville, Ky., and Philadelphia, but he always returned to Cincinnati, the place of his first love, where he exerted, after all, his greatest influence.

We commend the work of Dr. Juettner in the highest terms and hope it will be so successful that a new and larger edition will shortly be forthcoming. Dr. Juettner and others in Cincinnati have formed a society for the study of the medical history of the West, and it is to be hoped that similar histories of other medical centers, such as Chicago and St. Louis, will soon be written along the lines of this work. There should be some one collecting material for such stories at once in order that the knowledge yet existing in persons yet living may be set down before it is forever too late. What an interesting story could be told of the pioneers of St. Louis; Hodgen, McDowell (who is mentioned in Juettner's work), Gregory, Bolisniere, and others of that metropolis, and of Davis, Allen, Ingalls, Hollister, Fenger, Senn, Rauch and others, of Chicago.

We hope that another writer of Dr. Juettner's descriptive powers will appear in these and other centers before very long.

ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF

THE ILLINOIS STATE MEDICAL SOCIETY

ENTERED IN THE SPRINGFIELD POSTOFFICE AS SECOND-CLASS MATTER.

VOL. XVI SPRINGFIELD, ILL., SEPTEMBER, 1909

No. 3

ORIGINAL ARTICLES

THE DIAGNOSIS OF GRAVES' DISEASE.*

HUGH T. PATRICK, M.D.
CHICAGO.

Graves' disease with tachycardia, goiter and exophthalmos presents a striking and palpable picture. The disease may be recognized iconographically and affords no opportunity for diagnostic perspicacity. With either goiter or exophthalmos absent the diagnosis is still easy if one but take the trouble to look at the patient and feel the pulse. Difficulties of diagnosis arise only when both goiter and prominence of the eyes are wanting or are so slight as to be dubious. In the absence of tachycardia the diagnosis can not be made at all. If the pulse be normal the most one can do is to suspect that the case may be an incipient one of Graves' disease.

In short, all difficulties of diagnosis relate to the incipient or abortive cases, the so-called *formes frustes*.¹ Concerning these forms I wish to submit four postulates:

1. In some cases it is possible to make the diagnosis only after continued observation.
2. In the absence of a specific test (serum or other) there are some cases which can be proven neither to be nor not to be cases of exophthalmic goiter.
3. If we assume that *formes frustes* may recover without having progressed to the fully developed disease, the diagnosis in some such cases never can be settled.
4. If the abortive forms do not frequently permanently regress or permanently remain in the abortive stage, then the diagnosis of exophthalmic goiter is made much too frequently by believers in the simpler forms of "hyperthyroidism" and their identity with Graves' disease.

* Part of a Symposium on Exophthalmic Goiter before the Illinois State Medical Society, May 20, 1909.

1. *Fruste* is a term borrowed from numismatics, meaning worn or washed away, indistinct, blurred, defaced or deformed.

That many of these milder cases do recover under one treatment or another is common experience and the painstaking investigations of Stern² seem to show that the *formes frustes* generally tend to remain as such and either recover or run on for years with no great change in type.

In the diagnosis of Graves' disease as a practical procedure I think it best to divest ourselves of all conception or opinion as to the nature of the disease. For investigation and research hypothesis is necessary. For action theories frequently are essential. But to start out to make a diagnosis in accord with a given hypothesis or theory is not only unscientific—it is unfruitful or worse. To state the proposition in another way, we must be guided simply by the signs and symptoms as we have learned to know them. In short, our diagnosis rests on symptomatology.

As already stated, with the three cardinal symptoms present the diagnosis makes itself. With either exophthalmos or goiter absent the diagnosis is easy. When of the triad only tachycardia is present the diagnosis may be difficult, but ordinarily it is not so if the observer carefully looks for other less constant and less diagnostic conditions, signs and symptoms which, with the increased pulse rate, make a familiar clinical picture.

CIRCULATORY SIGNS.

Tachycardia is, beyond all others, the most important symptom. I feel like saying no tachycardia, no Graves' disease. And it is the more distinctive because it is constant. Cases in which rapid pulse is present only on excitement, or after exertion, or when the patient is nervous, or which in any way is intermittent or paroxysmal are very rarely indeed cases of exophthalmic goiter. On this point I entirely agree with Oppenheim and disagree with Kocher, who considers an easily produced but inconstant tachycardia characteristic of the disease. To determine whether or no the tachycardia is constant, observation with the patient entirely at rest and devoid of excitement may be necessary. While the high pulse rate is constant, it is true that exacerbations of the tachycardia, episodes of violent palpitation, and even delirium cordis do occur.

Other frequent signs relating to the circulation are throbbing of arteries, especially in the neck; feeling of palpitation of the heart, constant or at irregular intervals, and a marked disproportion between the precordial impulse and the pulse at the wrist. This last sign is worthy of special note, as it is more marked in Graves' disease than in any other malady except perfectly obvious cases of organic heart disease. To feel a pounding, heaving cardiac impulse with a thin, compressible pulse in the absence of a heart lesion is a truly striking finding. Cardiac hypertrophy is sometimes observed, but it bears no necessary relation to the degree or duration of the tachycardia. Of course, valvular disease or myocarditis may be a complication, but one must be guarded in drawing conclusions from a heart murmur. A cardiac bruit, especially systolic, is no unusual sign of Graves' disease, and what seemed to be a murmur:

2. Richard Stern. *Differentialdiagnose und Verlauf des Morbus Basedowii und seiner unvollkommenen Formen*. Leipzig und Wien, 1909.

of organic origin may disappear with the patient's improvement. Under this head may be mentioned pulsation of the liver or spleen (Gerhardt) and epistaxis.

Closely related to the cardiac signs are the pulmonary ones. More or less dyspnea is frequent, tachopnea is not rare and many patients complain of a short, dry cough or coughing spells.

GOITER.

Enlargement of the thyroid is seldom absent throughout (is practically constant in children), but the size of the goiter has but little to do with the diagnosis. One lobe or both may be enlarged, generally it is soft, of uniform consistence, and apt to fluctuate in size. Not rarely the gland pulsates, sometimes a thrill may be felt, and frequently a bruit may be heard, especially over the upper part of the right lobe, a sign quite exceptional in other goiters. As is well known, Graves' disease may develop in an individual who for years has had ordinary goiter, in which case the former physical features of the goiter may change but little or not at all.

EXOPHTHALMOS.

This is less constant than the goiter, ordinarily, though not always, symmetrical, and may be of any degree. Protrusion sufficient to prevent complete closure of the lids and proper protection of the eyeball is not rare, and even prolapse of the globe from the orbit has been reported.

TREMOR.

Tremor should be known as the fourth cardinal sign, as it nearly always is present. It is fine, vibratory, 8 to 10 per second, generally affects the hands most, but may be more marked in the trunk, in which case it is best recognized by the hand placed on the patient's head or shoulder. Intensity of the tremor is variable, increased by excitement and exertion, and sometimes from no obvious cause. (Fluctuation of toxemia?)

NERVOUS AND PSYCHIC SYMPTOMS.

Could there be a fifth cardinal symptom it would be "general nervousness"—indefinite as the term is. Sometimes this is the only complaint brought to the physician. Indeed, these are the cases apt to go unrecognized because of insufficient care and persistence in examination. The patient shows nervous instability, is easily upset, easily startled, easily worried; there is increased emotivity, irritability, rarely unnatural cheerfulness. She complains of poor concentration and forgetfulness, is restless, fidgety, hasty and notionate. More or less insomnia is the rule, although sleep may be normal and undue somnolence has been observed. Most authors emphasize the altered mental state, but, aside from such changes as those just indicated, mental derangement, in my experience, is altogether exceptional. True psychoses do occur, but there is no distinctive type. It is worthy of note that they are *not* of the type known to be of toxic origin.

VITALITY AND NUTRITION.

Myasthenia in some degree is seldom lacking. The patient tires easily and feels weak, and I believe that some of the symptoms which have been individualized, such as the Bryson symptom (diminished chest expansion), the Moebius sign, weakness of ocular muscles, sudden giving way of the legs and paraparesis, are really only evidences of unusual asthenia. The general nutrition nearly always suffers. Patients frequently lose weight in the most unaccountable way, even when eating well and in the absence of any obvious gastro-intestinal trouble. Queerly enough, they sometimes put on flesh in the same inexplicable fashion.

Although many patients look anemic, sometimes cachectic, anemia can not be said to be a symptom of the disease. Red cells are normal and hemoglobin practically so. The mononuclear leucocytes generally are increased and the eosinophiles not infrequently so.

As a rule the temperature is normal, but in fulminant cases it may reach 103°, or even higher, the course of the case almost resembling that of acute miliary tuberculosis.

OTHER EYE SIGNS.

A good many of the confirmatory signs relate to the eyes. Failure of the upper lid to follow the globe as the patient looks from above downward (Graefe), failure of the lower lid to follow upward rotation, weakness of convergence (Moebius), infrequent winking (Stellwag) or the reverse, retraction of the upper lid (Graefe, Stellwag), failure of the eyebrows to rise when the patient looks upward, swelling of the eyelids, a fine vibratory tremor of the eyeballs, pulsation of retinal arteries, are the most frequent. Ocular palsies are rare.

TROPIC, VASOMOTOR AND GLANDULAR SYSTEMS.

Vasomotor or allied disorders of some sort are almost uniformly present. Nearly every patient sweats too much, either paroxysmally or steadily, and hot flushes are frequent. A feeling of heat, as if the patient had fever, is not exceptional. Red blotches appear spontaneously on the face, neck or body, and slight rubbing or scratching quickly shows the presence of dermatographia. The combination of pink or red flush with a moist skin contributes much to the characteristic facies.

Pigmentation of the skin is common, but may have to be looked for about the nipples or waist, or in the axillæ. Leucoderma, scleroderma and excessive lacrymation are less frequent. Local edema is not rare. The cervical glands often are swollen.

The urine is frequently increased in quantity (polyuria). Sugar is rare, albuminuria is not very rare, but whether or no it is to be regarded as a symptom of the disease is doubtful. Diminution of electric resistance is the rule, but this is now known to be due to the hyperidrosis. Hyperidrosis may be local.

Though out of place, it may here be noted that menstrual disorder is frequent. Menstruation may be excessive, scanty, painful or simply irregular.

GASTROINTESTINAL TRACT.

Watery diarrhea is such an ordinary symptom as to be of decided diagnostic value. It may be so profuse, frequent or prolonged as to be grave. Anorexia is rather the rule, but bulimia has been observed. In bad cases there may be vomiting, generally in connection with acetone-mia.

DIFFERENTIAL DIAGNOSIS.

In the time at my disposal it is quite impossible to take up the numerous questions of differential diagnosis. For instance, Sarbo reports a case in which it was impossible to decide between Graves' disease and a tumor or abscess at the base of the brain. Such a dilemma is rare and indeed real difficulty need not occur often. As Sir William Jenner was wont to remark, more mistakes are made from not looking than from not knowing. If we keep in mind the above-noted symptomatology and carefully observe our patient we shall seldom be at fault. The following brief addenda are offered, not as instructive, but as possibly suggestive:

Difficulties of diagnosis most frequently occur in young women or girls who are nervous and run down. Many such patients have chlorosis, in which event a blood examination will settle the question at once. Others are not chlorotic, but are nervous, sweat easily, especially on excitement, and on examination show tremor of the hands and a rapid pulse. These are neurotic individuals, generally of rather low vitality, naturally unstable. In these people a goiter is no great rarity. But repeated examination under favorable conditions will show that the tachycardia is not constant, that when the patient is tranquil the tremor has quite or nearly disappeared, and that the sweating likewise occurs only during excitement or embarrassment. Many girls at puberty develop a soft goiter and are nervous. Some of those have Graves' disease, but most of them have not. Constant tachycardia and the other concomitant signs are absent.

Tuberculosis should no longer mislead us, for not only will the accessory signs and symptoms of Graves' disease be absent, but any case of tuberculosis which will cause tachycardia, tremor and nervousness will easily be recognized by the thermometer, examination of the chest, inspection of sputum and use of tuberculin.

Subjects of psychasthenia, neurasthenia, and hysteria are nervous, have palpitation, often tremor and complain of weakness or prostration. All of these maladies have their own peculiar features. The microscopic self observation and analysis, phobias and sensory distresses of the first two, the impressionability and stigmata of the last are foreign to Graves' disease. The palpitation is always intermittent and the myasthenia is more apparent than real.

In myasthenia gravis we find true and very marked fatigueability of muscles, but there is no constant tachycardia, certain muscular groups are predominantly affected and the so-called myasthenic reaction to faradism fixes the diagnosis.

Heart disease is not often mistaken for exophthalmic goiter, but the reverse sometimes happens when the heart symptoms are prominent, especially if a murmur is to be heard. Generally careful search will reveal other signs of Graves' disease and the absence of so-called secondary symptoms of cardiac disease, such as venous stasis, edema, hepatic enlargement, fluid in the serous cavities. In the latter, too, the effect of active exercise on pulse and respiration are more marked than in the former, except in the very advanced and the fulminant cases of Graves' disease, in which cases the diagnosis is easy. Needless to say, the renal involvement and change in blood pressure so frequently found in heart disease are wanting in exophthalmic goiter.

Occasionally a simple goiter which is very large or which grows backward may cause pressure on the cervical sympathetic and cervical veins, and perhaps on the trachea as well. The result may be some exophthalmos, dyspnea, vasomotor changes about the face and some weakness. But the tachycardia is wanting, the exophthalmos and vasomotor disorder are generally unilateral and the general symptoms of Graves' disease are lacking.

THE MEDICAL TREATMENT OF EXOPHTHALMIC GOITER.*

D'ORSAY HECHT, M.D.

Assistant Professor of Nervous and Mental Diseases, Northwestern University Medical School; Consulting Neurologist to the County Institutions for the Insane; Attending Neurologist to the Michael Reese and St. Elizabeth's Hospitals.

CHICAGO.

The many theories advanced at one time or another concerning exophthalmic goiter have greatly enriched its therapeutic aspects, but the criticism, I think, may be made in all fairness that of the numerous remedies suggested only a select few seem rational, while many are of doubtful value and others again deserving of frank condemnation. In the light of most recent and ambitious research it would appear that we need take into account in our modern therapeutic conception of this disease little else than a consideration of the efficacy of bed rest and serums, on the one hand, and bed rest with surgical intervention, on the other. In respect, however, to the broader caption of this paper a few references to symptomatic measures, electro- and organo-therapy, are included. The surgical aspect with or without rest régime will receive separate consideration in this symposium.

Eulenberg has probably been the staunchest protagonist of the medical treatment of exophthalmic goiter. Influenced by his six hundred carefully recorded cases, he has felt no hesitancy in stating that the disease is not even to be regarded as debatable borderland, but for the present must remain "upon the certain ground of internal medicine, and only under most absolute necessity should we swerve to the surgical side." With an entirely unsatisfactory knowledge of the pathogenesis:

* Read as part of a Symposium on Exophthalmic Goiter at the annual meeting of the Illinois State Medical Society, Quincy, May 20, 1909.

of this disease and our failure to arrive at a better clinical valuation of thyroidism as it masquerades in its abortive, aberrant, subtoxic and hypertoxic forms, this conservative attitude seems commendable. And yet in the light of increasingly convincing surgical statistics of a most favorable kind Eulenberg may recede from his original position.

Bed Rest.—Consistent with my first suggestion, I shall briefly allude to the advantages of bed rest alone, for, after all is said, it is probably the essential, if not the sole, rational *medical* treatment for this disease. The neurologist frequently encounters exophthalmic goiter in its very incipency, when the patient complains of general nervousness, an indefinable sense of precordial distress, consciousness of the heart beat, discomfort after eating, excessive sweating, quick fatigue and sleeplessness. In the presence of these symptoms alone, irrespective of the more significant tachycardia, tremor, enlarged gland and eye signs, the condition of thyroidism should always be well borne in mind. If properly estimated, it is of first importance to relieve the patient so far as possible of undue anxieties and cares and urge a withdrawal from the premises in which these are created. Wherever it is possible a complete, not a comparative rest, should be advised. I do not believe in yielding to a compromise in this matter, even at the time of earliest onset, unless I am convinced that the urgent need of the individual demands attendance upon work. If a loss in weight has been sustained, a diet of milk and nutritious food, largely vegetarian, should be encouraged, but flatulency must be avoided, or, at best, controlled. Tea and coffee should be allowed in great moderation, but alcohol and tobacco absolutely interdicted. The patient's life should be kept free from excesses and strenuous activities of all kinds, such as riding horseback, rowing, dancing, etc. It is very difficult at times to enforce obedience in these matters, but the importance of good habits and strict deportment from the very first is the better appreciated if one notes how quickly and unfavorably these patients react to nearly all external stimuli the least out of the ordinary.

For the tachycardia and nervous phenomena, with or without other symptoms, I know of no régime so satisfactory as a complete rest, after the fashion ensured by the Weir Mitchell method. The advice to take rest is more honored in the principle than in the practice, and I have found due emphasis on this point very worth while. Depending upon the severity of the symptoms, I ask of patients that they go to bed for three months at least, and probably much longer. Patients so advised at once grow accustomed to the idea and with quick adaptation are less unhappy about it than when told in an uncertain and vague way to just go to bed for a while. Details, I think, need not be gone into, except to add that rest does not mean sitting up for meals, going to the toilet, being propped up to read and write by the hour, and probably walk around the room a bit to stretch tired limbs or relieve a weary back. When the cases are even moderately severe patients must learn to remain passive, should be fed, raised, turned, moved and entertained. The underlying principle is one of a recumbent posture, with

some diversion for the mind, but little or none of an active sort for the body. Prolonged bed rest alone has greatly improved many a sufferer from thyroidism, and I think it is not too much to say that if early resorted to, even in the mild cases, a permanent abeyance of the symptoms is possible of attainment. I have in my own limited experience known patients to be free from relapses for so long an interval as six years, and could quote still longer periods of remission (if such they are) from the literature.

With a fairly good knowledge of the rest cure, pure and simple, upon the technic of which, however, so much depends, the results in the average cases should prove gratifying.

SERA.

The theory of hyperthyroidism put forward a number of years ago afforded an incentive for those interested in serologic investigations to produce a serum intended to neutralize the effects of hypersecretion from an overly active gland—in short, to introduce as an ideal measure an antitoxin. The “antithyroidein Moebius,” marketed by a well-known German pharmaceutical firm, was one of the first preparations to attract the attention of clinicians. It is a serum derived from thyreoidectomized sheep, and, although it in no sense fulfills the requirements of a specific serum, it nevertheless has proven of some value. The preparation is marketed in small glass vials, containing ten cubic centimeters, its stability ensured by an admixture of 0.5 per cent. carbolic acid solution. The Moebius serum will be found rather expensive (\$1.50 per vial) for average use. Its curative effect must certainly be denied, but it is quite likely to afford more temporary relief in a large series of cases than other preparations similar in kind and intended for a like purpose. I have had occasion during the past two years to use this preparation in eight cases, for variable periods, in ascending doses, beginning with five drops and carrying the average dosage to twenty-five drops, by mouth, three times a day, after meals. In three patients I observed a favorable influence on the tachycardia and subjective accessory symptoms, which improvement became more marked as the dose reached and exceeded eighteen drops. In one patient, a girl of nineteen, I noted an appreciable decrease in the goiter, but there was no other favorable reaction to the treatment, even when the serum was pushed to thirty-five drops, three times daily. In another young lady of twenty-four and a man of forty the administration of the serum and the course of bed rest caused a constant rise of temperature from 98.6° to 99.4° , together with an increase in the nervous symptoms calling for its discontinuance. In two cases the results were entirely negative. In all cases the increase in dosage was from five to eight to twenty-five drops, gradually getting back to the starting point. The longest period of administration was six weeks.

The second preparation to arouse the interest of physicians was that elaborated by Rogers and Beebe, who aimed to produce a specific active anti-serum made from human glands for the treatment of thyroidism.

The authors admit the cytologic character of their serum and the undesirable reactions it may cause, which they seem unable to prevent because of the action of a specific serum on the body tissues in general not participating in the perversion of thyroid function. It can not be said that Rogers and Beebe have failed in the fulfillment of their intention to produce a specific serum, but it is to be doubted if in our present state of serologic investigation a specific serum can be made that will not of necessity contain substances so toxic for the body as to be harmful and even dangerous. If a serum could be prepared that would be specific for thyroids and neutralize only the toxins of hyperthyroidism without in any way influencing other metabolic processes, then, indeed, would we have arrived at an ideal solution of the serotherapeutic problem of this disease.

In their study of the large number of cases in which this specific serum has been applied the authors have sought to classify their cases according to (1) those favorable for treatment; (2) those atypical forms in which a combined treatment would be indicated. They assert that the types favorable for the treatment are:

1. Typical Graves in the early stages; that is, incipient, mild, severe and extremely severe forms—the acute toxic malignant types.

2. Typical Graves, subacute with occasional exacerbations, but without marked secondary changes.

3. Types that may require treatment—that is, cases that develop thyroidism after forty or fifty. those past middle life who show thyroidism for a varying period before appearance of a goiter, those with long-standing innocuous goiter for years and late in life developing signs of thyroidism.

In view of the very extensive inquiry that Rogers and Beebe have made I think it less relevant to go into detail than state briefly their net results. Of 246 cases reported by them 227 were of the class favorable for treatment. They say that 30 per cent. of all cases under careful management can be practically cured, and the earlier they come under treatment the better the prognosis. Fifty per cent., they assert, can be improved. In 20 per cent. they have failed, and of these 10 per cent. have already died.

It should be remembered that the technic of administering the serum, which is by way of subcutaneous injection, is attended with local, and in many instances general, systemic reaction, sometimes of alarming, but not serious, nature.

Organotherapy.—The theory of hyperthyroidism a number of years ago—in fact, at its inception—created a vogue for organotherapy in this disease, which was neither well founded in principle nor proved in fact. Thyroid preparations were recommended and held in high favor. Even now they are not as of right they should be—obsolete.

In consonance with the thyrogenic theory that hypersecretion occurs, the administration of thyroid extract would appear to be illogical and contraindicated, and on the assumption of a perversion of glandular secretion would rest only a very relative indication for its use. Iodo-

thyrim, too, after a fair trial, has been found wanting. Thyroid extract, given in modest dosage, has, I think, in an overwhelming number of cases so aggravated the symptoms as to warrant its disuse. As for thyroidectin, at one time so popular in this country, it can not be said to have ever stood approved, although now and again, following its administration, a "brilliant result" was faithfully reported. Other glandular preparations advocated, such as thymus extract, ovarin, "probylin" (Roche), have proven uniformly disappointing. Not a few organotherapeutic specialties have from time to time been made marketable, such as rhodagen and Bascdowsan, while Lantz has encouraged the use of milk from thyroidectomized goats, but these are all therapeutic refinements of very doubtful value.

Electricity.—The actual value of electrotherapy in this condition has never been determined, and even its relative utility may be said to have decided limitations. The galvanic current has been recommended with instructions to place one pole (anode) over the sternum, and the other (cathode) at the angle of the jaw, allowing a mild, uninterrupted current to pass for about five minutes at each treatment. I have in one or two instances been able to verify what others have occasionally observed following this sort of mild stimulation—namely, a slight reduction in the goitrous enlargement—but it was an effect too insignificant and temporary to prejudice me in favor of its use. In line with these attempts to reduce the goiter have been the efforts directed at mechanical compression by a large collodion patch or bandage placed over the gland, both of which measures are wholly valueless.

Symptomatic Measures.—The selective treatment of one or more of the aggravating symptoms in this disease is seldom contemplated until general hygienic measures and a thorough trial of complete rest have been instituted and found ineffectual. A long list of remedies might contain a few that could be considered of avail, but not necessarily of much service. I wish to recommend, however, the administration in small doses, 10 to 30 grains, of sodium phosphate, dissolved in a one-third or one-half tumbler of warm water, and given three times a day after meals. It is particularly helpful early in the treatment, and especially so when the rest régime is in force. Its action as an eliminant may materially influence a reduction of the toxemia, hence its good effect. Where diarrhea is already present to a troublesome degree and the sodium phosphate has a tendency to increase it I have found that Bramwell's substitution of potassium phosphate in the same dosage acts well.

The good results which Babinski several years ago attributed to the use of sodium salicylate, gr. xv, given three or four times daily, I am not in a position to confirm. The feeling of nervousness which overwhelms so many of these patients and is frequently exhibited by nervous starts, shocks, apprehensions and vague fears is to be met with sedatives. The bromids in adequate doses of from 20 to 60 grains, two or three times daily, may be found necessary to overcome these distressing symptoms, and in the very aggravated cases it may be well to use chloral

hydrate. When a tumultuous and rapid heart action continues to annoy the patient small doses of bromid for a continuous period of time, together with rest and the ice-bag, may suffice quite as well and do even better than the heart tonics, digitalis, strophanthus or spartein sulphate, which usually fail to control tachycardia and precordial distress. Gowers advocates the use of belladonna (until the mouth is dry and the pupils widely dilated) to allay the cardiovascular throbbing of which quite a few patients are conscious.

Forcheimer's strong prejudice in favor of the hydrobromate of quinin treatment in these cases has led to its frequent use by other observers. I have been impressed with the statements of so careful a clinician as Forcheimer, but have had little or no experience with the drug, which is administered in gelatin-coated pills containing quinin hydrobromate, gr. v, and ergotin, gr. i, and given four times daily for a long period of time.

In summing up: Called upon to treat a case of incipient Graves' disease, immediate bed rest should be encouraged, with a view to early operative interference. In advising the latter I should specify and insist, if I dared, that only a surgeon competent and experienced in thyroid surgery be called upon to perform the operation. In the light of cumulative surgical statistics, I believe that to temporize and tide patients over from one acute exacerbation of thyroidism to another, and so on, for several periods before advising operation means subjecting them needlessly to constantly increasing toxemia, diminished resistance, goiter heart, etc., eventually bringing them into the realms of high mortality.

A PRELIMINARY REPORT UPON THE ADVISABILITY OF THYROIDECTOMY IN CATATONIC DEMENTIA PRÆCOX.

ALLEN B. KANAVEL, M.D.
CHICAGO.

IN ASSOCIATION WITH
LOUIS J. POLLOCK, M.D., AND ARTHUR B. EUSTACE, M.D.

Before beginning a discussion of this subject, we wish to emphasize that the present contribution is but a preliminary report upon which we feel an ultimate decision can not be based. It is but a report of work in progress. We wish to be neither ultra-conservative nor over-enthusiastic, but desire to maintain a strictly scientific attitude of investigation, and wish not to be betrayed into either advising or condemning the procedure.

The trend of scientific thought toward a more exact knowledge of the processes of metabolism has brought forcibly to our attention the relation of the ductless glands to disease. The brilliant results of surgery in exophthalmic goiter and the progress of our knowledge in relation to tetany and myxedema are thought by some to be but the first step into this unknown realm of physiology.

It has long been thought that certain mental disorders might have some relation to the perverted secretion of these glands. Laignel-Lavastine in an address on psychiatry at the recent congress held at Dijon¹ summarized our knowledge upon this subject and submitted certain questions to the congress for discussion. The consensus of opinion of the congress was that some relationship *probably* existed between disturbances of these organs and certain psychic disorders; and, secondly, that, taking into consideration cerebral predisposition, we may admit the *possibility* of a glandular origin of certain cases of cerebral weakness, dementia præcox, partial delirium, functional nervous disorders, hysteria, neurasthenia and psychasthenia.

Berkley, following the same line of thought, has arrived at the conclusion that there is a causal relationship between dementia præcox and the thyroid gland. He bases his assumption upon the following:

1. He has demonstrated that desiccated thyroid gland and iodine, which is now known to be an essential element in thyroid metabolism, aggravate the symptoms.

2. The disease often arises at puberty, when the ovaries and thyroid, in common with other organs, take on a change of function.

3. There is a real or chance similarity between certain symptoms of this disease and exophthalmic goiter. For instance, the increased reflexes, the heightened mechanical muscular irritability, hyperhidrosis, tremor, skin changes, profound loss of weight, rapid pulse, and dermatographia. At times, the thyroid gland is markedly enlarged, and very frequently there is a fullness in the neck.

Acting on this assumption Berkley and Follis operated upon eight cases and reported their results in the *American Journal of Insanity* of January, 1909. At the time of operation three patients had been insane for periods varying from four to twenty months. They were all mute and catatonic; five out of the eight recovered completely and remained well for from two to eight months when they were last seen. One of the remaining three was somewhat improved and two showed apparently no result. These last three were all insane over thirteen months when operated upon.

Case 4 was much improved after the operation, but at the end of the second month the remaining half of the thyroid hypertrophied with a return of the symptoms and was removed when the patient recovered and has remained well ever since.

While catatonic dementia præcox is frequently subject to remissions, such immediate and lasting results were beyond the bounds of mere coincidence. Still it seems to us we should be most guarded in our deductions. The cases were too few. They were all early cases where it is always difficult to be sure we are dealing with true catatonic dementia præcox. They might have been temporarily better following the shock of operation. However, this much safely may be said—that it is at least wise to investigate the question further. These investigations should, however, be made in a field where there can not be any possible room

1. Journal de Neurologie, 13 année, pp. 316-36 and 355-75.

for doubt as to the diagnosis. Here the pathological changes in the gland would be well established and would give us some basis from which to work in the future, although secondary changes in the system might preclude the possibility of recovery from the disease.

This, then, was our purpose in taking up the work, to find out whether or not there was a pathological condition in the gland which would establish the relationship of dementia præcox to the thyroid. Incidentally a study of the clinical course of the cases might throw some light on the question.

Owing to the secondary changes throughout the system little hope was entertained for alleviation of the symptoms in these old cases, although one of Berkley's cases that recovered had had the disease twenty months. After the pathological condition in well developed cases was known and the clinical course studied it was felt that we would have some solid ground from which we could advance into the study of the indefinite and early cases and thus settle once and for all whether or not anything might be expected from the procedure. We present here only the first part of our report, that upon the old cases. We have operated upon only two early cases. One of these was operated upon only the day before yesterday. The other case, with a third not included in this series, shows marked improvement and will be reported by Dr. Pollock. We expect to increase this list of early cases and then give a final report, which we hope will be conclusive.

The work was begun some four months ago, when material was placed at my disposal through the courtesy of Dr. O. C. Willhite of the Cook County Institution for the Insane. The cases were selected and studied carefully by Dr. Louis J. Pollock.

With the assistance of Dr. A. B. Eustace and Dr. Pollock these cases were operated upon and seven-eighths of either the right or left lobe excised without cutting any muscle except the platysma. The operation was extremely simple. The patients all made an immediate and uneventful recovery. The glands were sectioned and studied with the assistance of Prof. F. R. Zeit and Mr. Maynard of Northwestern University Medical School. In three cases parathyroids were removed by choice, since we wished to see if this might have any effect upon the course.

The findings may be grossly classified as follows:

Two were practically normal, two showed excessive parenchymatous growth; one was a marked colloid goiter, while five showed moderate colloid growth. Marked hyperemia was present in all of the glands and microscopic hemorrhage was commonly present. It is readily admitted that the above classification is not a scientific one, since it is now known that frequently one type shades into the other, but we have chosen the predominating characteristic and it makes a clinical division which is readily understood by all.

What is the result of our findings? Owing to the lack of time it is impossible to discuss the record-making contributions of Marine and Williams, Bauman, and Reid Hunt upon thyroid metabolism. It should be mentioned, however, that the former have shown that by feeding iodine hyperplastic glands become colloid, and conversely by withdrawing

iodin and removing parts of the colloid glands they become parenchymatous, and these again can be made colloid by feeding iodin. In other words, they have demonstrated experimentally what Wilson maintains occurs in the human—i. e., that colloid goiter may be a secondary stage of an original hyperplasia and excessive secretion. So that, even though in these cases we found only two glands showing a tendency to the picture noted in Graves' disease, the colloid glands found may be a degenerative change and so do not absolutely contraindicate an assumption of a previous perverted or excessive thyroidism. In other words, eight out of ten cases showed pathological changes compatible with the assumption of a thyroid origin for the disease.

The persistence of the symptoms of dementia præcox after the active processes in the gland have ceased may be explained in the same manner as the similar picture in Graves' disease where we remove an apparent colloid gland in a patient showing marked symptoms; i. e., the patient is suffering from lesions of the central nervous system—myocarditis, etc.—which were produced by long passed thyroid toxemia.

Alzheimer and others have shown similar changes in dementia præcox.

So much should be said for the sake of fairness. On the other hand, colloid goiters certainly do develop without evidence at any time of perverted metabolism. Moreover, a study of five of Berkley's cases made by McCallum does not show pathological evidences of Graves' disease and these were early cases. Of the five, two were colloid goiters, two normal and one showed parenchymatous change.

As far as we could determine the parathyroids we removed did not show any characteristic pathologic change.

To sum up the matter, one can not assume any distinct pathological basis for ascribing dementia præcox to a hyperthyroidism similar to Graves' disease. We recognize, of course, that this is only one phase of the question and that the pathological picture can not definitely exclude a perverted thyroid metabolism as a factor. That partial thyroidectomy is absolutely of no avail in old cases I believe it is safe to assume. But when one remembers that Berkley has had five cases apparently completely recover and we have had two greatly improved, if not cured, by this procedure, and nothing else is known which may offer any hope in this group of most pathetic psychoses, it seems justifiable to continue our investigations in the early cases.

REPORT OF PROGRESS OF CASES BY LOUIS J. POLLOCK, M.D.

The following is a brief report of the clinical course of those cases of dementia præcox operated upon by Dr. Kavel. Before reporting upon them, however, it will be well to mention the outcome of a case of dementia præcox, incidentally operated upon for the relief of dyspnea, etc., due to pressure from a thyroid tumor.

The patient was a male, age 22, family and personal history practically negative. He was always well until he was 20, when he became peculiar and exhibited signs of early dementia præcox. At the same time it was noticed that his neck began to enlarge; he became delu-

sional, he saw spirits, was noisy and maniacal. He was taken to the Detention Hospital. He was received at Dunning March 13, 1907, where the excitement was replaced by a condition of apathy, refusal to speak, emotional indifference, which, with periods of hallucinations, were the predominating symptoms of his condition. During the course of his disease there occurred febrile attacks, associated with swelling of the thyroid, rapid heart action, some leucocytosis and increased excitement and hallucinations.

He was operated upon Aug. 12, 1908; a partial thyroidectomy was performed by Dean Lewis and Dr. Rouen; on the 24th stitches were removed and patient had improved physically. Sept. 9, 1908, showed marked improvement mentally, the hallucinations had disappeared and thought process had become clear; Sept. 16, 1908, he was paroled to his mother; three days later went to work and has not been heard from since.

The series of cases operated upon by Dr. Kanavel consists of ten males and one female; eight of these are purely catatonic dementia præcox, presenting for the most part the symptoms described below and which for avoidance of repetition need not separately be considered in each case, one hebephrenic and two cases presenting a mixed type.

Of the eight catatonic patients but one needs to be dealt with separately. The others present the following picture:

They are dull, apathetic, show marked defect in attention, do not exhibit any interest in their surroundings, remain mute, giving no indication of having heard the question addressed to them, show no manifestation of emotion on stimulation, present great lack of voluntary activity, remaining in the same place and posture for hours; in one there is marked negativism, a senseless resistance to all movements; in another there is more marked cerea-flexibilitas. Accompanying this group of symptoms are also physical signs of dilated pupils, reacting promptly to light, cyanosis of extremities, dermatographism, hyperidrosis and increased reflexes. The two mixed types present, in addition to the symptoms of catatonia, the one tendency to fabrication and fleeting delusions of grandeur, the other a silliness and grimacing suggestive of hebephrenia.

The above group of cases may be divided into those in whom the illness has lasted from five to ten years, from two to five years and those under one year. Of those lasting from five to ten years there are three cases—6, 8 and 10 years respectively. Of these two are pure catatonics and one mixed type; of those lasting two to five years there are 6 cases, 2, 2, 2½, 3, 3½ and 4 years respectively; of these 4 catatonics, one mixed and one hebephrenic; of those under one year there are two cases, one but recently operated upon, duration from 6 to 8 months, and one male, age 23, duration 10 months.

In the first group—namely, those from five to ten years—there has been no change in the condition since the operation; in the second group, from two to five years, one catatonic, age 19, during 3 years, presents but the slightest change, such as would occur in the course of the disease—namely, he now answers some of the questions addressed to him while formerly remaining mute. The others in this group present no change in

their condition. Of the third group, one has been too recently operated upon to discuss, the other is a male, age 23, of a catatonic type.

Father died in an insane asylum at the age of 35; previous history negative. Present illness began April 19, 1908, with worry, then development of mutism; would stand in one position for some time; had vague delusions of persecution, and was admitted to the hospital May 7, 1908, in a catatonic state, staring stolidly before him, answering all questions with the phrases, "I don't know; I couldn't say." An examination in January, 1909, showed but little defect in perception, some loss of memory, the presence of delusions of persecution, great emotional deterioration, attention at times very hard to get and interest very little. He showed no voluntary activity, would not help upon the ward and remained mute except when hard pressed. Operated upon Feb. 8, 1909. Feb. 15, 1909: Has evinced the idea to work. February 22: He is up working about the ward, making the beds, taking interest in his surroundings, talking to other patients. March 1: Improvement continues; patient wants to be interviewed to show that he is well, as he wants to go home. March 15: Wrote a letter to physician telling how he felt, an act of volition certainly not present before the operation. May 8: During the past few weeks, owing to the fact that his mother is unable to take care of him at home as yet, shows greater depression, but is still greatly improved.

DISCUSSION ON THE PAPERS OF DRS. PATRICK, HECHT, KANAVEL AND BLACK.

(Symposium on Exophthalmic Goiter).

Dr. Frank P. Norbury, Jacksonville:—Mr. Chairman: It was my privilege to hear Dr. Berkley's paper as read before the American Medico-Psychological Association at the Cincinnati meeting last year. I have since followed the literature, meager as it is, and I find that there is nothing definite, nothing we can tie to that changes our attitude toward dementia præcox. I personally believe in the toxic theory in the genesis of dementia præcox. My clinical experience derived from observation of cases from their incipency, along the years to terminal dementia, has taught me this. Again, Kraepelin's teaching, together with that of others, deserves most careful consideration. Yet, after all is said and done, experience also teaches that there must be a background upon which the fearful picture of dementia præcox is painted. That background is the irrevocable native potentiality which runs its course, spends its energy in the climax of adolescence. Study the symptom complex of dementia præcox appearing as early as thirteen years and as late as thirty to thirty-five (I give these ages from my own clinical cases), and what do you find? Certain ill-defined metabolic disorders, coupled with the development or maturing of sexual factors (which are contributing elements to say the least) in the growth and complexity of the problem. The defences of the organism against disease are vulnerable, more so than usual and the clinical course suggests, confirms, toxic etiology. But I say plus unusual susceptibility. We know nothing of the clinical pathology of the disease, as yet, worth while, to justify the expectancy of Berkley. We all have had cases even in the years when we called such primary dementia, which seemed to have no apparent toxic cause. They were dements by deprivation; they were not capitalized sufficiently at the beginning; hence, their mental and physical capital was spent when adolescence made its run upon the bank.

Again, dementia præcox may be a sequel to a defined metabolic disorder, such as infantilism. I had such a case recently. The patient, male, aged 26, had the mental ensemble of dementia præcox and the physical make-up of infantilism.

He lacked sexual factors to add to the contributing factors in the cause of his troubles. He was a child in this respect. The thyroid was not involved in this case.

Now, what does the future offer for dementia præcox? I wish I could be sanguine, hopeful as regards surgical interference. I am a friend to scientific surgery always, and if it can offer to this unfortunate class, which otherwise must go "to the scrap heap," some hope, all well and good. But I must still believe dementia præcox exists because of hereditary conditions and conditions of deprivation, the study of which can be revealed through Mendel's law. These cases lack the potential possibilities to carry them through but a short span of intellectual life. Fifty per cent. can be classed under this head. Fully 25 per cent. recovery, sufficiently at least to reach a mental level that is compatible with a fairly useful and happy existence, providing some one can wisely direct them. We all see such cases. I had one, eighteen years ago, who for fifteen years has been successful in business. I could mention perhaps fifty others who are self-sustaining, and all could come under the clinical classification of Kraepelin, be called dementia præcox; most of these belonged to the catatonic group.

D. Hugh T. Patriek (closing the discussion on his part):—I have nothing more to say with reference to the diagnosis, but I do wish to say a few words about treatment. With regard to the non-operative treatment, I should like to say that there are two or three things well worthy of consideration, and one of these is galvanism. I do not know why it should be so and I have no theory on the subject, but I believe that the galvanic current properly applied to the neck, whether that means galvanization of the cervical sympathetic or of the pneumogastric nerves or of the thyroid gland, is certainly of some avail. Then there are some of these cases with great nervous erethism that seem to do better on bromids than anything else. Why that should be I do not know in the least.

As regards the surgical treatment, I am quite in accord with what Dr. Black has said. The recent statistics of surgical treatment are remarkable as compared with the early efforts in this direction. But then, as a matter of daily practice, may we not allow ourselves to be guided by the statistics of men like Kocher, who reports three thousand cases of operations on the thyroid and several hundred cases of operations for Graves' disease? Such statistics are not to be considered thoughtlessly, but with the understanding that a man who has operated upon three thousand cases of goiter and two hundred and fifty cases of exophthalmic goiter would naturally be expected to have statistics very much better and more favorable than the ordinary surgeon of wide experience, who has operated upon perhaps twenty-five cases of exophthalmic goiter and one hundred cases of goiter. It is not altogether fair to the patient for us to conclude that because Kocher loses one in twenty-five cases of exophthalmic goiter, therefore the surgeons of our acquaintance to whom we must refer our cases are going to operate on the basis of a like percentage. Not in the least. Let us take the first sixteen cases operated on by Dr. Charles Mayo, in which the mortality was 25 per cent. A surgeon who operates nowadays has the advantage of the experience of Mayo and Kocher. He can read what these men have written and profit by their experience, to a certain extent. But we must remember that when Dr. Mayo operated on that group of cases, in which the mortality was 25 per cent., he was already an unusually skilful and experienced surgeon. He was not a tyro. So that it is not fair to the patient for us, in recommending the operation, to say that it can be done with the chance of losing one patient in twenty-five. We must not forget that these patients often undergo an operation which apparently is surgically perfect and yet they go into collapse and die. Whether it is due to an expression of the secretion from the gland or to shock of a peculiarly susceptible nervous system, or to one or other of sundry causes assigned, we do not know. But these deaths do occur in the best and most skilful hands.

To summarize, I should say: Given a patient with Graves' disease who is reasonably well under rest, bromid, baths, electricity, salicylate of soda, etc., who can go about and attend to her duties with a fair degree of comfort, who gets a considerable amount of sleep, who is not very weak, she had better be

left alone. On the other hand, if a patient is not comfortable, is distressed, is sick, she would better be operated upon, provided the patient is not so sick that the chances of operation would be very serious. A surgeon said to me that he would not operate on a person with Graves' disease who could not walk around the block. Certainly not. I would not advise that a patient be operated on for this disease who could not walk three or four times around the block. A patient who has not the vitality to take a fairly vigorous walk is in no condition to undergo this really serious and hazardous operation.

Dr. Kanavel (closing the discussion on his part):—I have only a word or two to add in closing the discussion. Had there been sufficient time at my disposal, I would have taken up the subject of serumtherapy and the pathology of Graves' disease and dementia præcox.

In regard to operating on cases of Graves' disease, there is one thing I would like to mention, and that is, in cases of toxemia following operation, and in the event of toxemia before operation, in my experience, particularly after operation, the use of a large amount of water given subcutaneously, with the idea of flushing out the system and removing the toxic material, acts most remarkably. I have had cases after operation which seemed to be in collapse, but after having given them large amounts of water subcutaneously they have reacted favorably.

Dr. D'Orsay Hecht (closing the discussion on his part):—I should like to be counted among those who subscribe to the spirit of the work exploited by Berkley in his first report. This work is in line with the ambitious type of research that is being carried on at the present time in behalf of a better understanding of what we are pleased to call the internal secretions, the ductless gland, in which particular sphere may be included the problems that relate to the hypophysis, the thyroid, parathyroids and thymus.

I think Dr. Kanavel is not only to be congratulated on his report but upon the conservative attitude he takes; the fact that he is not carried away by the operative possibilities but pays full respect to the clinical picture of a mental disease with its unfavorable prognosis calls for quite as much approval as his surgical report. The field is an enormous one, and whether or not anything is to come of it, as Dr. Norbury has emphasized, remains to be seen. We should be more than willing to embrace the surgical aspect of dementia præcox if the results are convincing, much as we find ourselves welcoming the operative treatment of Graves' disease.

As to the question of infantilism in connection with dementia præcox, as referred to by Dr. Norbury, it is in accord with the pathologic possibilities of the ductless glands and ductless gland secretion, as, for instance, witness the feminism and reversion to infantilism in cases of hypophyseal tumor. Here we meet with it as an evidence either of hypo- or hypersecretion. It is not at all inconsistent to think that low ancestral vitality, bad heredity, etc., may tend to develop a constitution deficient in the secretions that are necessary for the full normal potentiality that Dr. Norbury has referred to.

The prognosis in patients suffering from the catatonic type of dementia præcox, would seem to be the least favorable of all the clinical forms, and yet they are regarded as more hopeful than the paranoid or hebephrenic type of cases.

I have but little to add. I think Dr. Patrick's attitude is an ultraconservative one. I recently saw a case of Basedow's disease in which I advocated rest treatment for a period of three months, and specified how it should be carried out, anticipating operation; furthermore, I requested that the operation be done by a man amply qualified to do thyroid surgery. In giving such specific advice some of the drawbacks apprehended by Dr. Patrick are entirely eliminated. Ultraconservatism fails to take into account the very important factor in these cases of toxemia. When it comes to the question of operating on these patients, the element of already present or impending toxemia must be considered. It occurs to me they would stand a much poorer chance of recovery if operated on later than early, in their very incipency. I reiterate that if I were confronted with a case of in-

ipient Basedow's disease I would prepare the patient in every detail consistent with a desire to reduce the toxemia, and when that had been reduced to its lowest degree and such secondary changes, as are referable chiefly to the heart, afforded little or no concern, I should feel that the favorable time had come to consider operation, and there would be no hesitancy in placing the patient in the hands of a thoroughly well qualified, competent surgeon, one who had done enough thyroid surgery to justify the choice.

The 5 per cent. mortality mentioned applies not only to Kocher, but to Schultz, Reidel, and others, who are doing the most approved kind of goiter surgery; this percentage is at no disadvantage in comparison with the percentage of inevitable deaths which not infrequently occur very early in the disease and commonly in the course of eight or ten years.

TUBERCULOSIS IN INFANTS AND CHILDREN.*

C. W. LILLIE, M.D.

EAST ST. LOUIS, ILL.

Tuberculosis in infants and children is a disease to which more attention should be directed, not alone because of its frequency, but because of the extreme importance of an early diagnosis, and the possible further fact that deaths are often ascribed to other diseases when tuberculosis is a most important factor in the etiology of the illness.

The frequency of death from tuberculosis is greater than any statistics would show, many doctors being very slow to recognize that disease in the very young, and, as many children die of diseases presenting obscure symptoms, it is not improbable that many deaths are honestly attributed to other diseases which have nothing more to do with the death than to add a complication.

There is a strong disposition on the part of the laity, and also to be observed in the profession, to assign as a cause of death the disease which leaves the impression of ready belief, and in the face of the popular opinion that consumption is not a disease of childhood it appears comparatively infrequently in the death certificates.

In the United States census returns for 1900 we find there were 2,106 deaths of children under one year ascribed to tuberculosis and 4,754 deaths of children under five years attributed to the same cause. Now it will be fair to assume that many deaths reported due to other causes were in reality tubercular. The presumption is made stronger by an analysis of certain classes of causes in which many of the conditions and symptoms found in the tubercular are usually present. Of these mention may be made of "malarial fever," "enteritis," "debility and atrophy," "meningitis," "convulsions," "pneumonia," "bronchitis," "peritonitis," and various diseases of the "bones and joints."

When we take into account the fact that it is only in recent years that the extreme prevalence of tuberculosis was recognized in adults, and that to many it is still unrecognized sufficiently early to render any treatment of benefit, it is not surprising that with a diagnosis based wholly upon objective signs the true nature of the disease might escape

* Read at Annual Meeting of the Illinois State Medical Society, Quincy, May 18, 1909.

the ordinary superficial scrutiny so frequently observed in the clinic room.

Among the causes for the frequency of tuberculosis in infants and children heredity may be mentioned; and, though the direct transmission of the infection from mother to child through the placenta may be rare, we must still admit the inheritance of the type of the parent, and with this the susceptibility to certain forms of disease. The milk from tuberculous mothers, or from tuberculous cows, can be charged with a fairly large percentage of the tuberculosis in the very young. On this subject Osler's *Modern Medicine* presents, in the chapter on "Tuberculosis: History and Etiology," by Edward R. Baldwin, M.D., the following plain statement, which should be kept constantly in mind by the physician who is called to treat diseases of children: "The resistance to tuberculosis is least in childhood, when the tissues readily permit the infection to enter at various places and to be more easily distributed." If this be accepted as a truth we may be guarded in making a diagnosis without giving due weight to the possibility, or even the probability, of tuberculosis in any obscure case being the cause of the derangement.

While carelessness in examination may be occasionally charged against the doctor, and he be held responsible for errors in diagnosis, it is still oftener that the ignorance of parents is responsible for the advanced "home-made" diagnosis and treatment so common with many parents. Another fault, which is found to prevail to a great extent in cities as well as in the country, is the suggestion of various remedies by the friends, relatives, and even casual acquaintances of the family of the sick child. It is very easy for one person to offer a course of treatment for another if both are equally ignorant; and it is not unusual to find that the suggestions have been adopted, and often to the detriment of the little patient.

While we may not be able to fix with certainty the relation of intestinal infection to infection by other routes, there are still sufficient data to establish the fact of such mode of invasion and sufficient evidence of its frequency. On this point we may quote from recent reports which show a varying percentage, but so positive that doubts can no longer be entertained that a large number of children become tubercular through the digestive tract. Cases of primary intestinal tuberculosis, as determined by autopsies, have been reported as comprising 19 per cent. in Halle; Lubarsch found 21.2 per cent. in 297 cases; in one hospital in Berlin 16 per cent. of the autopsies in infants and children were primary tuberculosis of the digestive tract; one series of autopsies showed the astonishing rate of 47.6 per cent. In England reports of 1,560 autopsies give 18.6 per cent. of primary intestinal tuberculosis. In Copenhagen it is estimated that 10 per cent. of all cases of tuberculosis are of this variety, though Harbitz found 22 per cent. of 117 cases to be of this form. The above figures are quoted from a recent paper by Ravenal, professor of bacteriology in the University of Wisconsin, and published in the April issue of the *Cleveland Medical Journal*.

A study of these facts is the more necessary because of the statements by Koch as to the impossibility of acquiring tuberculosis from the milk of tuberculous cows, the bovine bacillus not being identical with the bacillus of human tuberculosis; statements which, if they do contain even the slightest degree of error, are calculated to do very great harm by the wide dissemination of anything coming from so eminent a man and by the great weight attributed to his mere opinion.

The question of whether bovine and human tuberculosis is identical is not so much the question as whether either the one or the other can cause death, and on this question there is now almost an unanimity of opinion. Both are deadly, and both forms should be guarded against in the young and growing child because of its special susceptibility to this form of infection. It is probable that more than 10 per cent. of all deaths from tuberculosis in infants and children are due to the bovine bacillus.

These facts lead to the inevitable conclusion that tuberculosis might be reasonably expected to furnish a large percentage of the deaths of infants and children, and should demand from us a most careful scrutiny of every case of doubtful character, and when we are unable to fix with reasonable certainty upon a cause other than tuberculosis, at least bear in mind the strong probability of this being the cause.

It is not long since I have heard a physician say that he had never seen a case of tuberculosis in "right young children," but he had seen a "number of cases of chronic malaria and some of them had been fatal." Now, while I am not disposed to doubt the diagnostic skill of the gentleman, I am still of the opinion that his judgment has been too hasty in at least some of the cases, and a part of them had tuberculosis instead of "chronic malaria."

As it is not my purpose in this paper to do more than to point out some possible errors and suggest a reasonable caution in dealing with infants and children, I will not enter into the subject of diagnosis and treatment, either being too large for a paper for this society, but for the purpose of emphasizing certain features of my subject I will report a case of so much interest to me that I feel like dividing it with my colleagues. One reason for the high degree of interest in this particular case is the fact that the father of the child is a dairyman and supplies milk to a number of the inhabitants of the city of East St. Louis, and from this circumstance, and the further fact that the inspection of the cows in the dairies is not systematic, we might readily believe that other cases of a similar character occurring in the families taking milk from this dairy become infected through that medium. How many such cases have been seen during the time this particular dairy has been in existence it would be impossible to give an estimate. It may be readily believed that the same results will follow from the same cause which doubtless exists in other dairies in our city as well as elsewhere, and that many of the obscure cases of disease in infants and children should be attributed to primary "intestinal infection."

The case I have to report is as follows:

On Jan. 9, 1909, I was called to see a child, twenty-three months of age, and found the following history: About July the baby had been ill

with "malaria," according to the "home-made" diagnosis, principally under the experienced grandfather, whose profession is that of the law, and for this "chill tonic" had been given for several weeks, with no apparent good results, though during the treatment for "malaria" there had intervened a severe diarrhea, or "summer complaint," as stated in the history, and for this a great variety of so-called "home remedies" had been administered, beginning with the very popular "Jamaica ginger," followed by "blackberry brandy," "castor oil," and "calomel," the latter being repeated at frequent intervals during the summer, even after the diarrhea had subsided. From all this treatment there was no gain in weight, but rather a constant loss.

It is proper to state that, after the failure of the "chill tonic" to restore the child to health, the diagnosis had been modified, and the treatment changed according to the amendments in the diagnosis; this included "stomach trouble," there being some vomiting at times, and for which lime water was administered in the food, which at this time consisted principally of milk, and, it is needless to say, from the cows in the "home dairy." As this line of treatment gave no apparent relief, made no improvement in the general condition of the child, which still continued to decline, a diagnosis of "liver trouble" was made, and here is where the calomel became of such great importance, and where the popular idea that calomel is the remedy for all forms of disease of the liver was given its full share of credence; but the results again showed that another fault had been made in diagnosis.

Matters remained about the same with this poor child until I was called on January 9, as stated, though, in addition to the conditions already mentioned, it had fallen from a "high chair" a few weeks before, though it had not appeared to suffer from this fall at the time. The grandfather insisted that this was the cause of the continued bad condition under the persistent treatment it was getting. A few weeks prior to my visit another factor of extreme importance was added. An older brother had thrown a shoe at the "baby" and had struck it a blow on the forehead, and, although this left no marks, it became a potent "cause" in the complicated case.

When I first saw it the child had but little fever, but showed that it was badly nourished—was sallow, skin dry and harsh, eyes dull and apparently weak. It had been vomiting and it was thought that convulsions were threatening, though there had not yet been any marked indications pointing to such results; but there had been sufficient symptoms to alarm the parents. At this time I was unable to make a positive diagnosis, but, as there were slight indications of some cerebral disturbance, I ordered sodium bromid in one grain doses every three hours, with two minims tincture of belladonna in elixir and syrup of tolu.

I saw the child no more until the twenty-first of the month, when the cerebral symptoms had become very marked, and there was vomiting and diarrhea, both of which yielded readily to treatment.

The mother was confined on the 23d, and on the 24th I was asked to see the child again, and at this time I informed the father that the baby was suffering from tubercular meningitis and that I did not consider the case at all a hopeful one.

This statement was not satisfactory to the father and after I had gone he called another physician and asked him to undertake the treat-

ment, but, as he was not given all the information possessed by the parents, he did little more than to relieve the worst symptoms and never made a diagnosis.

Three days later the mother called me to see her on account of a severe pain in her back and, after ascertaining that this had no apparent relation to her confinement, being probably due to a neuralgic state, I was asked to examine the baby and to see if anything further could be done for it. The examination gave me no further information, though I did not do more than listen to the heart and lung sounds, and advised that the treatment adopted by the attending physician be continued.

A few hours later I was called again and asked to undertake the further care of the sick child. On arriving at the house I found that the doctor who had been treating the case was already there, and together we made a very thorough examination and informed the parents that there was nothing more to be done than to allay the symptoms of unrest; that the child could not be expected to recover. A sedative consisting of sodium bromid, tincture of belladonna, and tincture of gelsemium was prescribed and we left the house after warning the parents that convulsions would probably come on during the night and that the medicine was for their prevention.

Very soon after I had reached my office I was called and urged to "come at once," as the baby was very "bad," but, as I had patients waiting in the office, I asked that the other doctor be called, and later learned that he could not be reached, but that a third physician had been called in. He also stated that nothing could be done and advised that the course of treatment agreed upon by myself and the consultant be continued. This was done, but the child died during the night.

On the following day the father and grandfather called upon me and asked if I would make a postmortem to ascertain the exact cause of the death. This I readily consented to do, and accordingly made the examination in the presence of the father, the grandfather and three physicians whom I had invited to be present.

On opening the cranium it was found that there was no evidence of any injury to the skull, either by the fall from the chair or by the blow by the shoe, and the skeptical grandparent was shown that his position was not well taken. It was shown, however, that the dura was studded all over with small tumors, few of them being larger than a millet seed, and to this condition was ascribed the cerebral symptoms manifested during life.

The mesentery was the seat of the most active tubercular processes, the glands being in all stages of growth and decomposition, though none had actually broken through the peritoneum even when the parenchyma had been entirely destroyed. Some of them were very large and were apparently actively growing.

The examination convinced every one that the child had died from tubercular meningitis, or that a tubercular meningitis had intervened in a case of *tabes mesenterica*.

While there is but little which is unusual in the case reported, and probably nothing in this paper not perfectly familiar to every physician, I still feel that I am justified in presenting it, the extreme importance of an early diagnosis demanding the closest attention to all ailments of

infants and children because of the rapidity with which disease advances in the very young.

The facts presented lead to certain conclusions:

1. That doctors can not be too careful in their examination of children; and that, as tuberculosis is the most "common of all diseases," it should be suspected when a positive diagnosis of some other disease can not be made.

2. That parents should be taught that it is dangerous to undertake the treatment of a child for even the simplest forms of disease; that if the child is not seriously ill it will recover without medicine, but that if it is seriously ill it will need the services of a physician; that the parent is not competent to say that the disease is not grave, but that for any deviation from the normal a physician should be called; that if the child is not ill the doctor will know it, and if it is a sick child the case is taken at the earliest possible moment.

3. That the civil authorities in cities should see to it that the milk supply of its inhabitants is of the best quality, and especially that the dairies from which the supply is taken have no tubercular cows.

There are a few other points of importance relating to this subject to which I will call attention but which may appear to be irrelevant: A more thorough system of caring for the tubercular poor should be established in cities, towns, and counties; cases of tuberculosis should be reported to health boards, and, after deaths from tuberculosis or after removals of the tubercular from one house to another, thorough fumigation should be practiced.

DISCUSSION ON PAPER OF DR. LILLIE.

Dr. H. B. Hemenway, of Evanston:—The author speaks of the importance of cities having supervision of the milk supply. After studying the subject for some considerable time, I think this should be by the state. The state is the proper authority. One village or one city will have one set of rules, and another will have another code. The people in general do not appreciate the necessity of having careful supervision of the milk supply. The milk companies will ship milk at one time from one section to a certain city, and at another time from another community, without any previous warning, and it makes it exceedingly difficult for a city like Chicago or Evanston, for instance, to keep up an exact supervision. If the cities supervise their tributary dairy districts, they must travel far from home, often duplicating work and expense as well, and work without authority in the dairy territory. They work at a great disadvantage. I believe this supervision should be exercised by the state.

In the second place, I would call attention to the importance in every case, like that just reported, of having an accurate, careful, bacteriological examination and investigation made, not to depend upon the diagnosis that is made post-mortem, and upon the gross appearances, not only to find out whether or not there is the bacillus of tuberculosis present, but *whether it is of the human or bovine type*. Some time ago, near Aberdeen, Scotland, there were three children in a family, as I remember the report, one of whom died of meningitis. No post-mortem examination was made. Shortly after that a second child was taken sick and died of meningitis, and an examination showed that the meningeal fluid contained the bacillus of tuberculosis of the bovine type. It was found that the family had one cow from which they got their milk. It was found that the milk contained tubercle bacilli, and on the death of the cow they made a thorough examination of the various organs and throughout they found the same type of tubercle bacillus which they found in this case of meningitis.

Again, Hess, of New York, reported the results of examinations made by the injection of milk into guinea-pigs. The tests of can milk taken from the open market, showed that 18 per cent. contained the bacillus of tuberculosis, demonstrated by the injection of the milk and injection of the cream into guinea-pigs, and examining the results. He found the places from which this infected milk was obtained, and got a history of children who were drinking the milk; he found the children who had been drinking the milk, tested them with tuberculin, and found that 25 per cent. of them reacted to the Calmette test. This shows that there is danger of infection to the human being, especially children, from infected milk.

One other point: I think it was Pottenger, of California, who, in an article published not very long ago, called attention to this point, that just as a human being is sensitive to smallpox, and cattle are not specially sensitive to it, but cattle are sensitive to the vaccine disease and the human being more mildly: so in the same way we find the human being is very sensitive to the action of the human tubercle bacillus, but less sensitive to the bovine type. On the other hand, the milder disease protects against the more severe, and so it has seemed to me very probable that in a large percentage of our cases of tuberculosis occurring in young children this disease is overlooked; the child is able to resist the infection, and finally acquires an immunity against the disease.

Dr. H. I. McNeill, of Chicago:—In regard to the prophylaxis of tuberculosis in children, my attention was very emphatically called to the fact that nursing children with tuberculous mothers may contract the disease in that way, where apparently there is not a family susceptibility. This was brought to my attention by a child upon whom I operated on the 24th of December, 1901, at the Cook County Hospital, Chicago. The patient was a boy, nine years of age, who had fallen upon a sharp iron which penetrated the abdomen, and at the operation the mesenteric glands were found very generally tuberculous. One of the glands was removed at the time for the purpose of examination, and found to be tuberculous. This child was the youngest of a family of several children; the other children were all strong; but the history was that the mother contracted tuberculosis while this child was nursing, and the child had undoubtedly obtained its tuberculosis from the mother's milk.

Dr. Lillie (closing the discussion): I have very little to add to what I have already said in my paper. I wish to say, however, that a bacteriological examination was made to ascertain whether or not the mesenteric glands were tuberculous. They were found tuberculous, but there was no differentiation made between bovine and human tubercle bacilli. It was not known what particular form it was, and while this question possibly may for a long time remain unsettled, as to whether or not there is more than one kind of bacillus, in spite of the fact that there appears to be two kinds, it may ultimately be shown that there is but one form of bacillus of different strains, starting possibly from the same origin, but deviating on account of inhabiting different culture media. The time may come when it will be shown that one will merge into the other. No matter what the form of bacillus may be, if we become infected by it, we may die, and especially children, and they should be protected from any possible infection.

A BRIEF REPORT OF CASES OF EARLY PULMONARY TUBERCULOSIS TREATED BY DIFFERENT TUBERCULINS.*

E. H. BUTTERFIELD, M.D.
OTTAWA.

It is not the purport of this paper to over-estimate the therapeutic value of any one particular form of tuberculin, but to compare a group of cases in which different kinds of tuberculin have been used, or none

* Read at Annual Meeting of the Illinois State Medical Society, Quincy, May 18, 1909.

at all, and then to analyze the evidence by comparison as to the end results.

The view most generally and justifiably entertained is that human tuberculosis may be, and is, caused by bacilli of either the bovine or human type, supported as it is by the balance of all available evidence.

The British Royal Commission appointed to inquire into the relations of human and animal tuberculosis proved conclusively that the introduction of the human tuberculous material into cattle gave rise at once to acute tuberculosis, with the development of widespread disease in various organs of the body, such as the lungs, spleen, liver, lymphatic glands, etc. In some instances the disease was of remarkable severity, in others mild and localized at the spot where it was introduced, yet tuberculous material taken from the cattle thus mildly affected and introduced successively into other bovine animals gave rise to general tuberculosis of an intense character.

In comparing carefully the disease thus set up in the bovine animal by material of human origin with that set up in the bovine animal by material of bovine origin it has been found that the one, both in its broad, general features and in its finer histological details, is identical with the other.

If, then, tubercle of human origin can give rise in the bovine animal to a form of tuberculosis identical with ordinary bovine tuberculosis, one can safely assume, with Ravenel, "that theoretically there is no reason why the bovine bacillus should not readily be transmitted to man. It has for all other mammalia on which it has been tried a virulence greatly exceeding that of the human tubercle bacillus. It would certainly seem a remarkable anomaly for man, who is one of the most susceptible of animals to tuberculosis, to be immune to the most powerful virus known."

The obvious impossibility of direct experimentation on human beings is unintentionally and indirectly carried out the world over. The milk and butter consumed in great cities often contains large quantities of the bacilli of bovine tuberculosis in a living virulent form, and, while the human and bovine bacilli differ in their morphology and perhaps in pathogenic effect—i. e., different types of parasites—I am sure that bovine bacilli are transmissible to human and are responsible for the greater share of the tuberculosis which occurs in children. I am also convinced that man is attacked by two distinct forms of tubercle, one transmitted by infection from person to person, the other by receiving into the body bovine bacilli from infected food. In other words, the human body is susceptible to both forms of tubercle.

Tubercle bacilli of the *typus bovinus* appear chiefly in tuberculous lesions of children, the bovine germ usually being found in the mesenteric glands, tuberculous peritonitis, tuberculosis of the lymphatic glands and tuberculous joints. One writer, in summing up his views on the distribution of tubercle in the human body, states that, speaking provisionally and without any final evidence of proof, that tubercle bacilli of the *typus humanus* produce phthisis pulmonalis and tuberculous laryngitis. Acute miliary tuberculosis he believes to be of bovine origin.

The sputum of adults suffering from pulmonary phthisis was examined, in which only bacillus of the *typus humanus* were found.

The conversion of the *typus bovinus* into *typus humanus* during the lifetime of a single person and in his tissues is unproved, and we are justified, in view of the balance of evidence, in concluding, first, that both types are competent to produce tuberculosis in the human being; second, both forms of the disease have been identified in man; third, the bovine type is more common in children than in adults; fourth, the bovine type retains its special character even in the human subject; fifth, tuberculosis of bovine origin is much less frequent in the human subject than tuberculosis of human origin.

If in the human body two varieties of tubercle can be present at the same time and which, generally speaking, are antagonistic to each other, I have been much impressed with the idea of using a tuberculin prepared from a pure culture from bovine sources for the treatment of incipient phthisis pulmonalis. This tuberculin was prepared from a typical culture of "*perlsucht*," and is very carefully sterilized and standardized. In contradistinction to the bovine tuberculin, cases of surgical or bovine tuberculosis are oftentimes markedly improved or permanently benefited by the use of tuberculin from human sources. Discharging sinuses, tuberculous glands and tuberculous joints have in this agent a potent means for cure, in conjunction with those agents which improve the general nutrition.

We have administered Koch's B. E. in 104 cases of pulmonary tuberculosis up to the present time. These were classified, incipient, moderately advanced and advanced. This tuberculin was administered only to those who were running an afebrile course or where there was no contraindications to its use.

In the main I am not convinced that the use of Koch's B. E. in the larger proportion of this number was responsible for the results attained. As to the end results in these 104 cases, I shall be pleased to report in a paper at some future time. My purpose in presenting this paper, as stated at the outset, is to compare two groups of cases of practically an equal number and classified as incipient in which different kinds of tuberculin have been used or none at all. One series comprises twenty-three cases in which the bovine tuberculin was administered. The other group comprises seven incipient cases in which Koch's B. E. was administered and sixteen cases in which the tuberculin was not used.

A word as to the method of administration.

In the administration of bovine tuberculin it is best to begin with the minimum dose and slowly and gradually increasing the same until the higher doses are reached. I have never had any perceptible reaction in the administration of this particular form of tuberculin if caution was used in raising the dose. It should not be administered to patients having a persistently rapid pulse or elevation of temperature. Begin with a subcutaneous injection of 0.0001 of a mm., gradually increasing the dose once every week. The second injection, 0.0002 mm., is given after an interval of one week, provided no reaction has followed, and then doses (in milligrammes) in the following order: 0.0004, 0.0005,

0.001, 0.002, 0.0025, 0.003, 0.004, 0.005, 0.0075, and 0.01, the maximum dose, making in all twelve or thirteen injections. If the patient requires further injections the last injection of 0.01 mm. is repeated for a few more doses, but that dose never exceeded. Care must be used in the technic and careful supervision of the patient during the course of twelve or thirteen weeks.

It would be impossible to enter into detail and give the report of all the cases in full. I can only outline in brief some of the more striking ones in this group. I present for your consideration the following cases, treated with the bovine tuberculin in conjunction with sanatorium measures. They were all adults, 11 women and 12 men, and all the cases except two the disease is in the first stage, according to the classification of Turban; that is, involving one lobe of one lung, or both apices limited to above the clavicle and spine of the scapula. In the twenty-three cases tubercle bacilli were found in the sputum.

CASE 1.—A. S., aged 22 years. Occupation cabinet maker. Admitted to sanatorium Dec. 29, 1908. Gave no history of previous illnesses. No tubercular history in family. First symptoms, five months prior to admission. Two or three slight indications of hemoptysis in September. Marked shortness of breath on exertion with cyanosis of finger nails and lips. Coughs excessively in the morning. Some hoarseness. Expectoration thick and yellowish. Numerous tubercle bacilli in sputum. Temperature on admission, 100.4; pulse markedly accelerated; respiration, 22. Laryngeal examination, infiltration interarytenoid space. Slight inflammation of left vocal cord. Chest findings, slight tubercular infiltration right apex. This patient had a very erratic temperature for the first three or four weeks after admission. He was put absolutely at rest. After temperature was reduced gave patient twelve injections of bovine tuberculin. He left the sanatorium after three months, having gained eighteen pounds. Many examinations of the sputum were negative. Cough and expectoration very much improved. Chest examination revealed a healed lesion. Laryngeal infiltration much improved. Hoarseness practically disappeared. Appetite and digestion excellent. On thirty minutes' exercise twice daily. On account of acceleration of pulse and high arterial tension, did not deem it wise to give this patient more than a half hour exercise twice daily. Still some cyanosis of finger nails and lips when patient walked too rapidly. The improvement in this patient's condition was quite marked after the first few injections of bovine tuberculin.

CASE 2.—W. C. H., aged 22 years. Occupation, broker. Examined by Dr. Theo. Sachs and advised to enter sanatorium, which he did on Dec. 14, 1908. Gave history of pleurisy four years ago. Typhoid fever Oct. 12, 1908. No tubercular history in family. First symptoms Oct. 1, 1908. Cough and expectoration. Examination of sputum prior to admission negative. Marked loss of weight. Patient complained of extreme weakness and dyspnea on exertion. Poorly nourished. On admission, temperature, 99.5; pulse, 102; respiration, 24. Laryngeal examination, subacute laryngitis. Chest findings, marked infiltration of apex and middle lobe, right lung. Patient gave a history of a number of attacks of pleuritic pain over right side. Tubercle bacilli were found in sputum after many examinations, and then only a few. This patient's temperature ranged between 101½ and 103 for a period of two weeks. On the 29th of January gave him his first injection of bovine tuberculin, giving altogether twelve injections. He left the sanatorium after four months and a half, having gained 39½ pounds. Many examinations of the sputum negative. No cough or expectoration. Slight dyspnea on exertion. Temperature and pulse normal. Chest findings, still an extensive infiltration upper and middle lobe right lung as indicated by percussion dullness and broncho-vesicular breathing. On one hour and forty minutes' exercise twice daily.

Dr. Sachs saw this patient after discharge and expressed his surprise and gratification at the results.

CASE 3.—Mrs. L. E., housewife, aged 30 years. Entrance Aug. 21, 1908. No tubercular history in family. Miscarriage three months ago, since which time she has been gradually losing in weight. Cough excessive at night with some expectoration. Complains of considerable shortness of breath on exertion, with pain over right lower back. Environment poor. First symptoms three months ago. Examination of chest revealed a slight infiltration at right apex. Prior to admission had had no examination of sputum. Sputum findings on admission were positive. She was given bovine tuberculin—twelve injections. She left the sanatorium after a stay of twelve weeks, having gained seventeen pounds. Still has slight cough, but the amount of sputum markedly decreased. Many examinations of the sputum proved negative. Disappearance of all physical signs. Walking one hour and fifteen minutes twice daily. Recent reports from this patient, sputum examination negative. Feels perfectly well.

CASE 4.—Mr. H. E. V., aged 31 years. Office work. Admitted to sanatorium June 10, 1908. History of nervous prostration the winter of 1907. Family history negative. Patient indoors continually. Has been steadily losing weight. Weight on admission, 140 pounds. Slight hemoptysis May 28, 1908. Slight elevation of temperature in the evening. On examination patient had a slight tubercular infiltration of left apex. Tubercle bacilli found. He was given twelve injections of bovine tuberculin. He left the sanatorium after two months and eleven days of treatment, having gained twelve pounds in weight. Practically no cough or expectoration. Exercise three hours and a half daily. Disappearance of all physical signs. Sputum examination still positive. Subsequent report three months later, many sputum examinations negative. Present weight, 173 pounds, making 33 pounds gain over weight when admitted to sanatorium. Has no cough. Appetite and digestion good. Working twelve to sixteen hours daily.

CASE 5.—Mr. F. H., electrical engineer, aged 27 years. Admitted to sanatorium Sept. 8, 1908. Family history negative. Previous diseases, severe attack of pleurisy with effusion. Before coming into the sanatorium fluid withdrawn and specimen examined but no report. Patient well nourished. Weight on entrance, 136½ pounds. Normal weight, 143 pounds. Has slight cough and expectoration. Daily maximum temperature on admission, 100; pulse, 92; respiration, 22. Lung findings, pleuritic thickening lower anterior and posterior right lung. Sputum examination positive. Received twelve injections of bovine tuberculin. He left the sanatorium after four months, having gained 18½ pounds, twelve pounds over normal weight. Cough entirely disappeared. Slight expectoration. Many examinations of the sputum negative. Disappearance of all physical signs, excepting a few friction rubs at base of right lung. Exercise, two hours and fifteen minutes twice daily, with hill climbing.

CASE 6.—Mr. O., clerk, aged 17 years. Family history negative. Patient employed in poorly ventilated store. History of taking cold, Feb. 19, 1908. Poorly nourished with marked cachexia. Weight on entrance 133½ pounds. Cough, expectoration, night sweats, digestion impaired, daily maximum evening temperature, 101.3; pulse, 115; respiration, 36. The patient gave evidence of a moderate tubercular infiltration at left apex. Sputum findings, tubercle bacilli many in each field. Had altogether thirteen injections of bovine tuberculin. He left the sanatorium after three months and a half, having gained 21 pounds. Cough entirely disappeared. No expectoration. Many examinations of sputum, negative. Disappearance of all physical signs with no temperature. On two hours and thirty minutes' exercise twice daily at time of exit.

This I consider one of the most striking cases in this series.

On the following case the effect of the tuberculin was quite apparent:

CASE 7.—Mr. J., telephone clerk, aged 28 years. Admitted to sanatorium Oct. 8, 1908. History of la grippe six years ago. Stated that he had malaria all winter eight years ago. Mother died of consumption seventeen years ago; also one brother in August, 1908. First symptoms in October, 1907. Weight on en-

trance, 120 pounds. Cough and expectoration. Slight elevation of temperature in the evening; pulse, 100; respiration, 20. Poorly nourished with some cachexia. Has chills and night sweats. Digestion poor. Lung findings, right apex involved. Innumerable tubercle bacilli in sputum. He received twelve injections of bovine tuberculin. He left the sanatorium after four months, having gained 27 pounds. No cough. Expectoration slight. Many examinations of the sputum negative. Disappearance of all physical signs in lung with no temperature. On one hour and forty-five minutes' exercise twice daily.

He has since returned to his work as traveling inspector for the Central Union Telephone Company. Examined this patient a few days ago, sputum examination still negative. Patient apparently well.

CASE 8.—Mr. W. N., aged 32 years, clerk, admitted to sanatorium Sept. 13, 1908. No tubercular history in family. Habits regular. Weight on admission, 121 pounds. Poorly nourished. Cough and expectoration excessive. Sputum loaded with tubercle bacilli. Has chills and night sweats with marked shortness of breath on exertion. Had one severe hemorrhage prior to admission. Daily maximum temperature on admission reported 99.5; pulse, 112. Appetite poor. Complaints of extreme weakness. Chest examination revealed an active tuberculosis at left apex. In this case it seemed to me that this patient would develop an acute pulmonary process with rapid dissemination of the disease. After the second injection of bovine tuberculin his symptoms began to show decided improvement. He remained at the sanatorium five months, having gained 35½ pounds, which was 14 pounds above normal weight. Cough entirely disappeared. Expectoration slight. Physical signs at left apex practically negative. Sputum negative after many examinations. Temperature normal; pulse, 78 to 88. On one hour and thirty minutes' exercise twice daily.

CASE 9.—Mr. C. J., musician, aged 19 years. Admitted to sanatorium Aug. 4, 1908. No tubercular history in family. Had typhoid prior to admission to sanatorium. Weight on entrance, 142½ pounds. Normal weight 158 pounds. History of slight hemoptysis, July 28, 1908. Six slight indications since. Some shortness of breath on exertion. Temperature, 100; pulse, 104. Patient had a slight right apex infiltration. Sputum examination positive. Received twelve injections of bovine tuberculin. During the early days of this patient's treatment, temperature markedly erratic. He left the sanatorium after six months, having gained 29½ pounds. Cough and expectoration, none. Chest findings, negative. On two hours' exercise twice daily.

CASE 10.—Miss L. H., trained nurse, aged 22 years. Admitted to sanatorium Aug. 6, 1908. Family history negative. Slight attack of influenza winter previous to admission. This patient on admission was very poorly nourished, with marked cachexia. Excessive cough and expectoration. Tubercle bacilli were found in her expectoration. Weight on entrance, 112½ pounds. Some elevation of temperature in the evening; pulse, 103; respiration, 22. Chest examination revealed an active tubercular infiltration of both apices. The improvement in her case was remarkable after the first few injections. Altogether she received twelve injections of bovine tuberculin. She left the sanatorium after five months, having gained 23½ pounds, 12½ pounds over normal weight. Cough and expectoration practically disappeared. Disappearance of all physical signs with normal temperature. On one hour and a half to two hours' exercise twice daily. Many examinations of the sputum proved negative. Subsequent history three months later, no cough with slight expectoration. Sputum examination negative. Temperature normal. Present weight, 136 pounds. On three hours daily exercise. Sleeping quarters, porch tent.

This case impressed me very much on account of the rapidity of improvement in a case where I had every reason to believe there would be an acute tuberculosis of both lungs.

CASE 11.—Miss E. W., nurse, aged 32 years. Gave history of severe cold four years ago. Also one in February, 1908. Weight on entrance, 95 pounds. Poorly nourished. Cough and expectoration. Tires easily on exertion. Daily maximum evening temperature normal. Pulse slightly accelerated. Chest examination re-

vealed slight tuberculosis of right apex. Sputum findings, tubercle bacilli present. This patient left the sanatorium after five months, having gained twenty-five and a half pounds. Frequent examinations of the sputum negative. No cough or expectoration. On one hour and forty-five minutes' exercise twice daily. Disappearance of all physical signs.

CASE 12.—A progressively downward course in the following case seemed inevitable. The rapid improvement in this patient's condition when tuberculin was employed demonstrated in the most convincing manner its marked healing effect.

Mrs. Q. P., housewife, aged 27 years. Admitted to sanatorium July 12, 1908. Brother died of tuberculosis four years ago. Typhoid fever four years ago. History of malaria two years ago. Commenced to cough at this time. Cough and expectoration on admission excessive. Very poorly nourished with marked cachexia. Hemoglobin, 60. Weight, 111 pounds. Has night sweats with some diarrhea. Marked shortness of breath on exertion. Daily maximum temperature on admission, 102; pulse, 100; respiration, 25. Complete loss of voice. Examination of larynx revealed tubercular ulceration posterior third left vocal cord, and marked infiltration interarytenoid space. Examination of the chest revealed a slight tubercular infiltration of left apex. Examination of the sputum, tubercle bacilli innumerable. After temperature was reduced by absolute quiet, began the administration of bovine tuberculin. She left the sanatorium after five months, having gained 34½ pounds. Many examinations of the sputum proved negative. Hemoglobin, 95. Cough very slight. Expectoration, none. No hoarseness. Laryngeal findings, tubercular ulcer on posterior third left vocal cord healed. Still a slight infiltration in the interarytenoid space. Evidence of healed lesion at right apex. Temperature, 98.4; pulse, 94; no dyspnea. On one hour and thirty minutes exercise twice daily. Appetite excellent.

There are eleven remaining cases in this series upon which I might report, but time and space forbids. These were also treated with the bovine tuberculin. Two of them were classified on admission as moderately advanced.

In this group of twenty-three incipient cases in which the bovine tuberculin was employed the average length of sanatorium treatment was four months. Adopting the classification on discharge of the National Association, the results were as follows:

- 16 apparent cures.
- 6 disease arrested.
- 1 death.

The other series of twenty-three cases comprises seven incipient cases in which Koch's B. E. was administered and sixteen incipient cases in which the tuberculin was not used. The average length of sanatorium treatment in this group was also four months.

The results on discharge in the seven cases who received Koch's B. E. were as follows:

- 1 apparent cure.
- 4 disease arrested.
- 2 improved.

The results of sanatorium treatment in the sixteen remaining cases without the use of tuberculin were as follows:

- 14 disease arrested.
- 2 deaths.

The total results on discharge in the twenty-three cases of the latter series were as follows:

- 1 apparent cure.
- 18 disease arrested.
- 2 improved.
- 2 deaths.

In view of the results obtained in this series of cases and from observation of cases now under treatment I am convinced that a tuberculin prepared from bovine sources has a marked and healing effect in tuberculosis of the lungs. Experience teaches one that there is frequently a marked disproportion between the physical signs and the general condition of the patient. Many with slight activity of the tuberculous process and with slight lesions, in the presence of other virulent micro-organisms, have been forced to an irresistible decline. These are not suitable cases for the exhibition of tuberculin, and, although there is some uncertainty in the action of the autogenetic vaccines, the desperate character of the cases to which these are given is a justification for their employment.

Secondly, if the patient's natural resistance to his tuberculosis is lowered, efforts must be made to improve this condition by complete rest, nutritious food and pure air. Tuberculin will not help if these potent agents fail.

Thirdly, the tuberculous infection must be limited either to one lobe of a lung or two small areas in both lungs. If cavitation has occurred and general constitutional involvement, tuberculin has little or no lasting effect.

Fourthly, the age of the patient must be taken into account. The younger the patient the more readily do they respond to the action of tuberculin.

CUTANEOUS REACTIONS OF TUBERCULIN.*

FREDERICK TICE, M.D.

CHICAGO.

When Robert Koch¹ announced his great discovery of the tubercle bacillus and later published his more elaborate work,² the hope was entertained that a method was at hand by which an early and positive diagnosis of tuberculosis might be made. There is no doubt that this hope was in great part realized by the systematic and repeated examination of the sputum, but, with the increased knowledge of the nature of the infection and its pathology, the importance of detecting the condition before bacilli are present in the sputum has become more and more apparent. Strictly speaking, when the bacilli are present in the sputum the process is an "open tuberculosis." Consequently the hope is now entertained that the diagnosis may be made before this change

* Read at the Fifty-Ninth Annual Session of the Illinois State Medical Society, Quincy, Ill., May 18, 19, 20, 1909.

1. Berliner klin. Wochenschrift, 1882.

2. Mittheilungen a. d. k. Gesundheitsamte.

has occurred. One of the factors in the failure of the sanitarium treatment of tuberculosis is to be found in a late diagnosis, when the condition is moderately or far advanced. Such observers as Gerhardt,³ Eichhorst,⁴ Grancher⁵ and Turban⁶ recognized the non-importance of the bacilli in the sputum and the possibility of making a positive diagnosis in their absence. As neither the symptoms nor the signs in the early incipient cases are diagnostic, the announcement by Koch⁷ of his tuberculin for diagnostic and therapeutic purposes was hailed with great joy and expectation. It is not necessary to relate the disappointment, discredit and disuse which soon followed; this was to be expected when its mis-use is considered. There can be but little doubt of the utility afforded by the use of tuberculin in diagnosis. It must, however, be thoroughly understood that, while of the utmost assistance, it is only a valuable adjunct, to be considered in association with physical signs and symptoms, confirmatory evidence of the presence of tuberculosis. In the presence of bacilli in the sputum or a pulmonary hemorrhage a tuberculin test is relatively of but little value. It is in the incipient and doubtful cases where it is of the greatest value, for such cases with proper treatment can not only be cured but is a great financial saving when compared with the months or years of care required in the more advanced and hopeless cases. Although Trudeau,⁸ Möller, Wilkinson⁹ and many others have assured us of the harmlessness of tuberculin when properly employed, there is, nevertheless, a strong prejudice against its general use subcutaneously as a diagnostic agent. In selected cases and in the hands of those skilled in its use little or no harm may be done, but it certainly is not adapted for general use. The interest in tuberculin and its great value as a diagnostic agent was revived when von Pirquet¹⁰ announced his method of vaccination as a test in tuberculosis. The ocular method of Wolff-Eisner,¹¹ and almost simultaneously that of Calmette,¹² soon followed, as well as several others. During the past few months one or more of the local tests have been employed with the object of determining the individual and comparative merits in the diagnosis of tuberculosis.

The tests employed were:

1. Scarification, vaccination or cutaneous method of von Piquet.¹⁰
2. The ointment or percutaneous method of Moro.¹³
3. The dermo-reaction method of Lignières.¹⁴
4. The differential scarification method of Detre¹⁵ for diagnosis and therapy.

3. Lehrbuch der Auscul. u. Percuss. 1890.
 4. Handbuch der spec. Path. u. Therap., 1897.
 5. Maladies de l'Appareil respiratoire. 1890.
 6. Beiträge zur Kenntnis der Lungen Tuberculosis, 1899.
 7. Deutsche med. Wochenschrift, No. 46, 1890.
 8. Amer. Journal Med. Sciences, August, 1906.
 9. Treatment of Consumption, 1908.
 10. Wiener med. Wochenschrift 1907, Nos. 27 and 28.
 11. Beiträge zur. klin. der Tuberculosa, Bd. ix.
 12. Acad. d. Sc., 1907, cxliv.
 13. Munch. med. Wochenschrift, 1908, iv, 216.
 14. International Tuber. Congress, Washington, 1908.
 15. Wiener klin. Wochenschrift, 1908, xxi, 173.

As the subcutaneous use of tuberculin is contraindicated in certain conditions, especially in the presence of a pyrexia, while one of the local tests may be employed, a just comparison of the relative value is impossible. For some months past the ocular reaction has not been employed except in a few selected cases, as the same information can be obtained by one of the cutaneous tests unassociated with the danger of doing harm. The rhino-tuberculin and pharyngeal tuberculin tests are not easy of execution and have been employed in only a limited number of cases. In some of the questionable cases the Stichreaktion, first described by Epstein and Escherich but studied more especially by Klingmüller and Hamberger, has been performed; not, however, in a sufficient number to be of any value. Excluding, then, the subcutaneous, ocular, Stichreaktion, rhino and pharyngeal methods, the local cutaneous reactions may be considered.

Description of methods employed.

SCARIFICATION, VACCINATION OR CUTANEOUS METHOD OF VON PIRQUET.

The technic followed was that described by the originator. Generally, the inner surface of the fore arm was selected as the site for the test. The skin was cleansed by a few vigorous rubs with cotton moistened with ether, then two drops of undiluted tuberculin T. O. were placed upon the surface, the drops being about two inches apart. In order that a comparison of the results may be made a scarifier or scratcher (Schaber) was employed capable of producing a uniform area. After carefully sterilizing by heating or with carbolic and alcohol, the central scarification was made mid-way between the two drops by one or two turns of the instrument. Then a similar scarification was made with the point of the instrument inserted first in one and then the other drop of the tuberculin. A very slight pressure is made in order to remove only the most superficial layers of the epithelium, as it is unnecessary and undesirable to draw blood. A small piece of cotton is then placed on each of the drops of tuberculin and allowed to dry for three to five minutes. When this is not done, after waiting the specified length of time, the excess of tuberculin may be rubbed on the opposite forearm by means of the tip of one of the fingers as described in the dermo-reaction. When positive, in the course of a few hours such a test is characterized by a slight hyperemia to an acute inflammatory reaction at the site of the application of the tuberculin; the control remains unchanged. The test is not attended by a chill, fever, malaise or the manifestations of a subcutaneous reaction.

Jules Lemaire¹⁶ subdivides the reaction into three groups, as follows:

Feeble Reaction.—In which the hyperemic area measures from 4 to 6 mm. in diameter, with but a slight surrounding swelling and redness.

Medium Reaction.—In which the hyperemic area measures from 6 to 12 mm., with numerous surrounding papules and with considerable swelling and redness.

16. *Revue de la Tuberculose*, June, 1908.

Strong Reaction.—In which the hyperemic area measures from 2 to 3 cm.; with many papules, some of which are vesicular or pustular, and with much surrounding swelling and redness.

This classification has been employed and is indicated in the tables by the use of the plus sign, one, two or three, to indicate the degree.

THE OINTMENT OR PERCUTANEOUS METHOD OF MORO.

The preparation employed was a 50 per cent. mixture of tuberculin T. O. and anhydrous lanolin. Without any previous preparation of the surface about 15 grs. of the ointment was rubbed for about one minute on the skin of the abdomen, submaxillary region or the inner surface of the forearm. A corresponding area on the opposite side of the body was employed as a control. When positive the test is characterized in the course of a few hours by the appearance of papules and an area of hyperemia. Moro also subdivides the reaction into three groups, as follows:

Weak Reaction.—From two to ten papules measuring from 1 to 2 mm. in diameter, unaccompanied with itching or irritation.

Medium Reaction.—Ten to one hundred papules, some vesicular measuring about 3 mm. in diameter; accompanied by itching, irritation and considerable hyperemia.

Strong Reaction.—One hundred or more papules, some vesicular, others pustular, measuring more than 3 mm. and accompanied by much itching, discomfort and inflammation. The one, two or three plus sign is employed to indicate the degree.

DERMO REACTION METHOD OF LIGNIÈRES.

According to the description of the author the inner surface of the arm at the level of the biceps is the usual site selected for the test. From five to six large drops of the crude tuberculin T. O. are rubbed upon the surface. The reaction is identical to that obtained after the use of the ointment.

DIFFERENTIAL SCARIFICATION METHOD OF DETRE.

This is a modification of the von Pirquet method, consisting of the application to the skin of three different substances at the same time. Four scarifications are made—one for the control, one for the concentrated old tuberculin, one for a filtrate of a culture of human tubercle bacilli and one for a filtrate of a culture of bovine tubercle bacilli.

Since Robert Koch in 1901 announced that "human and bovine tuberculosis were distinct and separate" many investigators have studied the dualism of the tubercle bacillus. Nathan Raw and others have subdivided the various forms of tuberculosis into two clinical types, the *typus humanus* and the *typus bovinus*.

The human type of the bacillus is made responsible for:

1. Pulmonary tuberculosis.
2. Ulceration of the intestines and
3. Tuberculous laryngitis.

While the bovine type is held accountable for:

1. Tuberculous peritonitis.
2. Tuberculosis of the lymphatic glands.
3. Acute miliary tuberculosis.
4. Tuberculous joints.
5. Tuberculous meningitis, and
6. Lupus.

It has also been observed that these various lesions are antagonistic to each other. The determination of the probable type of infection becomes of the greatest importance in the treatment with tuberculin. As a bacteriologic diagnosis is so often impossible, this test, if found reliable, will be of the utmost value. Detre's investigations, confirmed by Berend, Heim and John, and von Gebhardt, showed a positive reaction to the human tuberculin in more than 90 per cent. of the cases of pulmonary tuberculosis; while in visceral and surgical cases in adults one-third to one-half reacted to the bovine tuberculin. According to this method the reactions are designated as "dominant" and "concomitant"; the difference, however, is often very slight. When both filtrates are injected simultaneously there is manifest a greater tolerance for the toxin corresponding to the concomitant reaction; while there is a marked intolerance for the corresponding toxin to the dominant reaction. This indicates the form of tuberculin to be employed therapeutically, and, while immunity may be produced by either, it is much more easily accomplished by the concomitant filtrate.

The reaction is also of service as a regulator of the therapeutic dose of tuberculin. Instead of producing immunity an intolerance may be produced by an improper dose. This is manifest by a local or general reaction and the intensification or reappearance of the reaction long after it has disappeared.

To understand the result of these tests, some of which are apparently contradictory, it is necessary to consider the question of tuberculin specificity, its mode of production and why the reaction may fail to occur in the presence of tuberculosis. As to the specificity in tuberculin tests, the autopsy only can be the deciding evidence. This manifestly is impossible in man, but there is abundant and convincing evidence furnished by control animals, the excellent opportunity offered by the application of tuberculin in veterinary practice and recently by reported findings in fatal cases where some form of a tuberculin had been employed. Frankel collected 8,000 observations in cattle in which the tuberculin reaction and the autopsy findings coincided in but a fraction over 2 per cent. Voges, in 7,327, found a difference of only 2.7 per cent. Von Pirquet reports 1,600 children on which the vaccination had been done. Of these 200 died and were examined carefully at autopsy. During life 68 of the 200 were found positive to the reaction, while at the autopsy macroscopic tubercles were found in 66. In one of the remaining cases pleuritic adhesions were present and probably tubercular.

In the whole domain of medicine there is no other subject of more interest or enveloped in greater mystery than that of the reaction to tuberculin and the mechanism by which an immunity is produced.



Fig. 1. Reaction to the ointment test of Moro—mild. (10x)

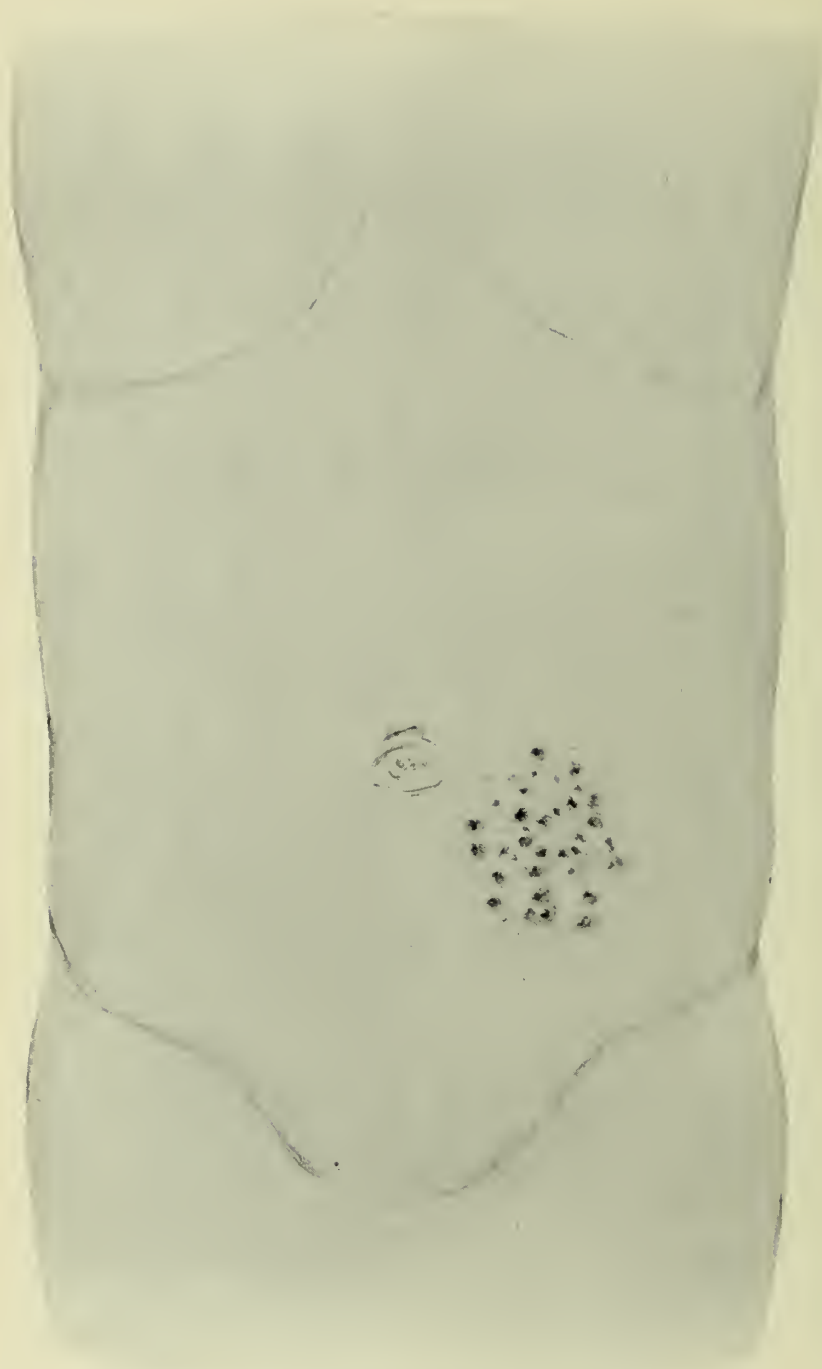


Fig. 2. -Reaction to the ointment test of Moro =moderate. (++)

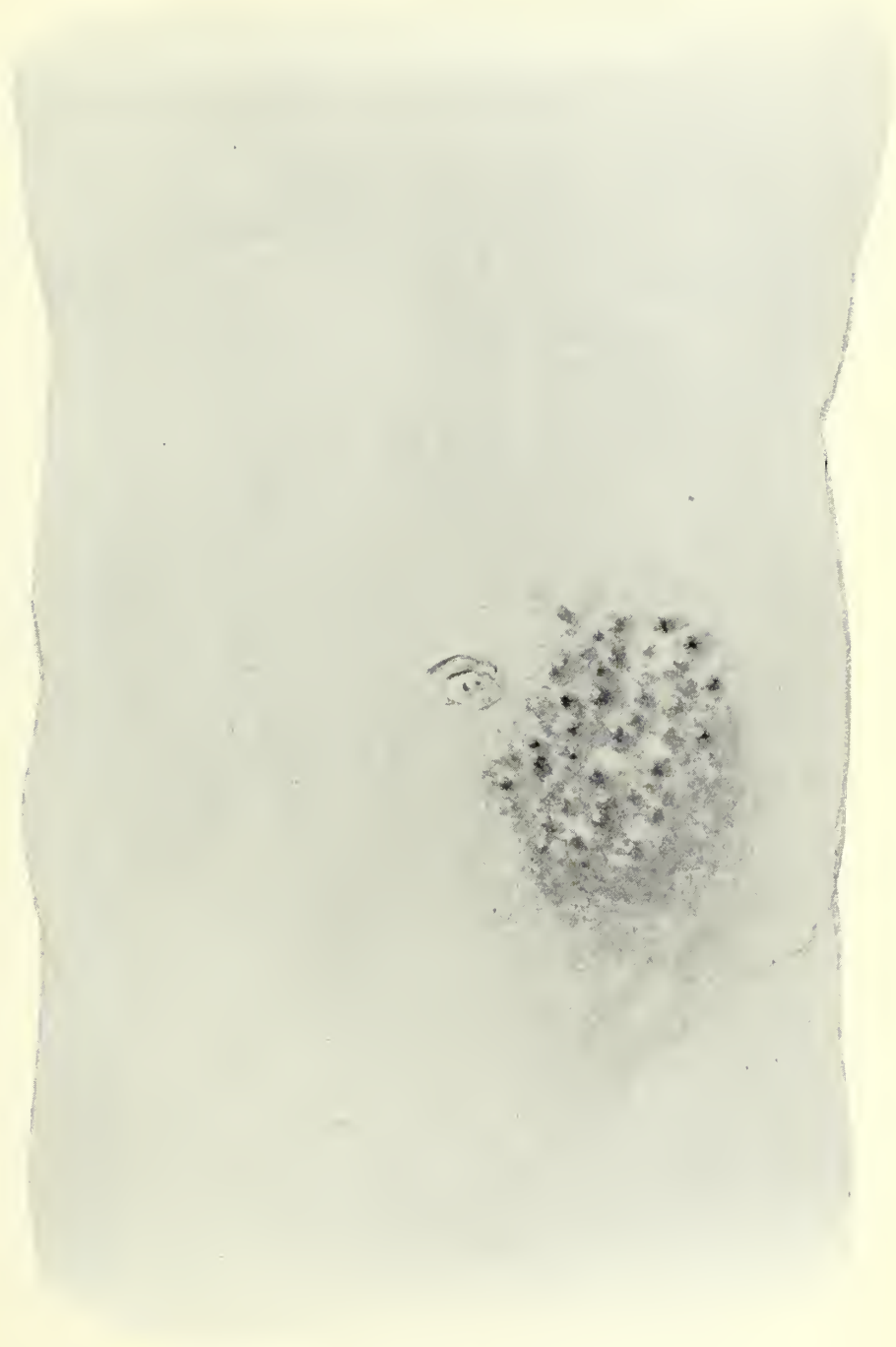


Fig. 3. -Reaction to the ointment test of Moro- -severe. (+++).



Fig. 4.—Return reaction to the ointment test, following the subcutaneous injection of tuberculin, fourteen days later.

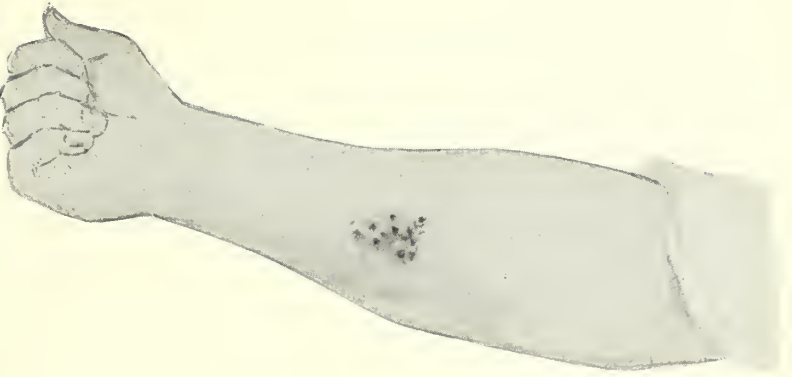


Fig. 5.—Reaction to the test of Lidenhøjes.

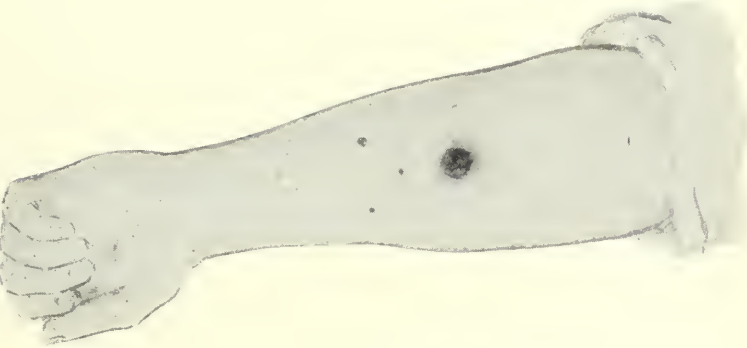


Fig. 6.—Reaction to Dextre test.

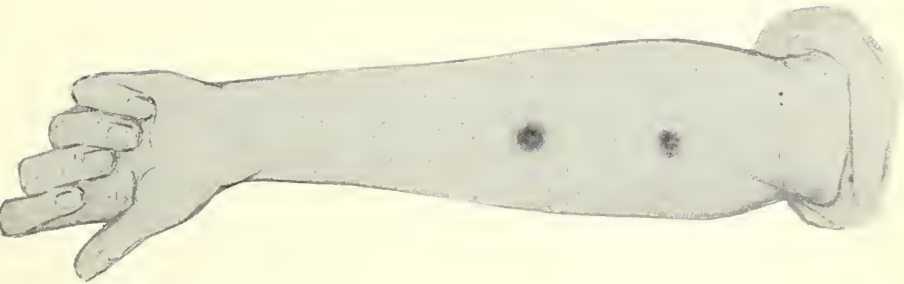


Fig. 7.—Reaction to von Pirquet test.

Why an extremely small amount of a toxin should produce such a marked and often violent change in the tissue cells is not easy to understand. When tuberculin is used subcutaneously, producing a reaction, it is characterized by certain features—a pyrexia, constitutional symptoms, local reaction and focal manifestations. In the cutaneous tests only one of these is made use of, the local reaction, but the underlying principle of the reaction is the same in all. The generally accepted theory, one which is most in accord with clinical experience, is that of hypersusceptibility, first demonstrated by Löwenstein and since described by von Pirquet under the terms *Allergie* and *anaphylaxis*. This condition of hypersusceptibility is the fundamental cause in the production of serum diseases and is a property common to all albuminous bodies. Von Pirquet states that the reaction is dependent on the presence of antibodies. In their absence no reaction is produced as in the case with a normal individual. In an advanced stage of tuberculosis or in a miliary type of the disease no reaction occurs, as the antibodies are wanting. During an attack of measles, as first demonstrated by von Pirquet, the reaction disappears temporarily, as the antibodies are not present.

MATERIAL USED.

Some form of a cutaneous test was employed in 235 cases, 91 of which were children in the dispensary and the remaining 144 in the various wards of the County Hospital. Counting the Detre scarification as one, a total of 356 tests were made, as two were frequently made at the same time on the one patient. Of the 235 cases, including the suspects, 110 were diagnosed clinically as tubercular, of which 73, or 66.36 per cent., gave a positive reaction, while 17, or 13.6 per cent., of the non-tubercular gave a positive reaction.

In 20 tubercular cases where the scarification and ointment tests were done simultaneously all reacted, except in one, where the ointment gave a negative result, while the scarification was positive. The same tests were applied to 10 cases considered non-tubercular, with a positive result in 10, of which 7 reacted to both, 1 to the scarification and 2 to the ointment. The scarification and the dermo tests were applied simultaneously to 14 suspects, with uniform results in 5 cases. Exclusive of the Detre test, the scarification and dermo were applied in 14 suspects with uniform results, 5 being positive.

The Detre differential was employed in 50 cases, 44 of which were diagnosed tubercular, 1 suspect, and 5 were infants a few months old that had been fed on cows' milk. A positive reaction was obtained in 32, or 72.7 per cent., of the 44 tubercular cases. With the exception of 2 all the 32 cases gave a dominant reaction to the old tuberculin; in one, a tubercular peritonitis, the bovine filtrate was the dominant one, and in the remaining case the old tuberculin and the bovine filtrate reacted with the same degree. In 10 of the 32, practically one-third, gave a very pronounced reaction to the bovine filtrate.

All of the infants on artificial food were negative to the test.

Some of the conclusions which appear justifiable:

1. Tuberculin, as a means of diagnosis, is a most valuable agent, but must be considered only from the standpoint of corroborative evidence. A positive reaction to tuberculin indicates the presence of tuberculosis, but physical findings and symptoms must be considered, for a tuberculosis may exist and fail to give a reaction.

2. The cutaneous tests are to be preferred to the subcutaneous or the ocular methods, as there are no associated dangers or undesirable results.

3. The percutaneous method of Moro, for certain reasons, seems to be preferable. It is easily applied without objection on the part of the patient or relatives. This is not the case with the von Pirquet, owing to the quite general antipathy to any form of vaccination and as the test in children is not infrequently associated with excitement and crying. The results are quite as constant and when a difference occurs it is in favor of the ointment. The dermo is not so reliable, and this may be due to the difficulty in applying as compared to the ointment, as the upper layers of the epidermis forms in rolls and is rubbed off.

4. The more youthful the patient, the more valuable the test. When autopsy records are examined, with the view of determining the frequency of some form of tuberculosis, practically present in all adults, the unimportance of a positive test, without other findings, becomes

TABLE 1. CASES IN WHICH THERE WERE CLINICAL EVIDENCES OF TUBERCULOSIS, SCARIFICATION AND OINTMENT.

Case.	Name.	Age.	Diagnosis.	Test.	Maxi- mum Re- action		De- grees.	Control.	Remarks.
					Pos. +	Neg. —			
1.	A. G.	12	Tubercular Arthritis.	Scar.	+	48	++	neg.	
				Oint.	+	48	++	neg.	
2.	M. K.	8	Tubercular Arthritis and	Scar.	+	48	+	neg.	
			Osteomyelitis.	Oint.	—	48	.....	.....
3.	M. P.	9	Tubercular Meningitis.	Scar.	+	72	+	neg.	
				Oint.	+	72	+	neg.	
4.	S. V.	9	Tubercular Meningitis, Peri- tonitis, Pul. Phthisis.	Scar.	—	..	.....	.....
				Oint.	—	..	.....	.....
5.	E. T.	13	Pulmonary Tuberculosis.	Scar.	—	..	.....	.....
				Oint.	—	..	.....	.....
6.	L. J.	1½	Pulmonary Tuberculosis.	Scar.	—	..	.....	.....
				Oint.	—	..	.....	.....
7.	G. L.	13	Pulmonary Tuberculosis.	Scar.	—	..	.....	.....
				Oint.	—	..	.....	.....
8.	T. V.	7	Tubercular Hip.	Scar.	+	48	++	neg.	
				Oint.	+	48	+	neg.	
9.	A. S.	7	Tubercular Hip.	Scar.	+	48	++	neg.	
				Oint.	+	48	++	neg.	
10.	T. McG.	5	Tubercular Hip.	Scar.	+	48	++	neg.	
				Oint.	+	48	++	neg.	
11.	J. D.	9	Tubercular Hip.	Scar.	+	48	++	neg.	
				Oint.	+	48	++	neg.	
12.	D. S.	3	Tubercular Adenitis.	Scar.	+	48	++	neg.	
				Oint.	+	48	++	neg.	
13.	M. T.	7	Tubercular Spine.	Scar.	+	48	+	neg.	
				Oint.	+	48	++	neg.	
14.	J. S.	7	Tubercular Spine.	Scar.	+	48	++	neg.	
				Oint.	+	48	++	neg.	
15.	C. K.	7	Tubercular Spine.	Scar.	+	48	++	neg.	
				Oint.	+	48	++	neg.	
16.	A.	5	Tubercular Spine, Cervical.	Scar.	—	..	.....	.....
				Oint.	—	..	.....	.....
17.	F. W.	8	Tubercular Spine, Double	Scar.	+	48	+	neg.	
			Tubercular Hip.	Oint.	+	48	++	neg.	
18.	G. H.	6	Tubercular Spine.	Scar.	+	48	++	neg.	
				Oint.	+	48	++	neg.	
19.	J. S.	4	Tubercular Adenitis, Cervi- cal.	Scar.	+	24	++++	neg.	Dispensary.
				Oint.	+	24	++++	neg.	
20.	E. G.	3	Tubercular Adenitis, Cervi- cal.	Scar.	+	48	+	neg.	
				Oint.	+	48	+	neg.	

TABLE 2.—CASES IN WHICH THERE WERE NO CLINICAL EVIDENCES OF TUBERCULOSIS, SCARIFICATION AND OINTMENT.

Case.	Name.	Age.	Diagnosis.	Test.	Maximum Re-		De- gree.	Control.	Remarks.
					Pos. + Neg.—	action Hours.			
1.	M. G.	6	Pneumonia, Lobular.	Scar. Oint.	—	..	....	....
2.	G. C.	3	Pneumonia, Lobular.	Scar. Oint.	—	..	....	....
3.	H. L.	11	Brain Tumor.	Scar. Oint.	—	..	....	....	Postmortem : Brain Tumors, no tuberculosis
4.	S. R.	3	Tonsillitis, Cervical Aden- itis.	Scar. Oint.	—	..	....	....
5.	C. Van A.	8	Tonsillitis.	Scar. Oint.	—	..	....	....
6.	N. P.	8	Vaginitis.	Scar. Oint.	—	..	....	....
7.	R. P.	9	Vaginitis.	Scar. Oint.	—	..	....	....
8.	O. V.	12	Vaginitis.	Scar. Oint.	—	..	....	....
9.	E. B.	11	Vaginitis.	Scar. Oint.	—	..	....	....
10.	S. P.	7	Vaginitis.	Scar. Oint.	+	48	+	neg.	
11.	M. C.	9	Vaginitis.	Scar. Oint.	+	48	++	neg.	
12.	L. B.	3	Vaginitis.	Scar. Oint.	+	48	++	neg.	
13.	M. P.	3	Vaginitis.	Scar. Oint.	—	..	....	....
14.	L. C.	5	Vaginitis, Eczema.	Scar. Oint.	+	48	+	neg.	
15.	L. T.	11	Vaginitis.	Scar. Oint.	+	48	+	neg.	
16.	A. P.	8	Congenital Syphilis, Cervi- cal Abscesses.	Scar. Oint.	+	48	+	neg.	
17.	R. S.	5	Genn Varum.	Scar. Oint.	—	..	....	....
18.	L. M.	7	Genn Varum.	Scar. Oint.	—	..	....	....
19.	H. P.	½	Congenital Syphilis, Epi- lepsy.	Scar. Oint.	—	..	....	....
20.	F. P.	9	Burns.	Scar. Oint.	—	..	....	....
21.	E. A.	9	Burns.	Scar. Oint.	+	48	+	neg.	Reaction slight
22.	Q. R.	10	Adenitis Cervical.	Scar. Oint.	—	..	....	....
23.	J. R.	10	Fracture Humerus.	Scar. Oint.	—	..	....	....
24.	C. S.	8	Fracture Tibia.	Scar. Oint.	+	48	+	neg.	
25.	T. B.	10	Otitis Media, Chr.	Scar. Oint.	—	..	....	....
26.	H. B.	5	Otitis Media, Bronchitis	Scar. Oint.	—	..	....	....
27.	D. S.	3	Scabies.	Scar. Oint.	—	..	....	....
28.	E. R.	8	Scabies.	Scar. Oint.	—	..	....	....
29.	L. S.	2½	Malnutrition.	Scar. Oint.	—	..	....	....
30.	M. C.	2½	Malnutrition.	Scar. Oint.	—	..	....	....
31.	H. S.	2	Eczema.	Scar. Oint.	—	..	....	....
32.	M. F.	4	Mastoiditis.	Scar. Oint.	—	..	....	....
33.	H. W.	3	Mastoiditis.	Scar. Oint.	—	24	....	neg.	Reaction slight.
34.	C. O.	9	Endocarditis.	Scar. Oint.	+	24	+	....
35.	E. P.	5	Acute Articular Rheumatism.	Scar. Oint.	—	..	....	....
36.	W. C.	8	Traumatic Injury: Am. of Foot.	Scar. Oint.	+	48	++	neg.	
37.	T. M.	11	Non-Tubercular.	Scar. Oint.	+	72	+	neg.	Dispensary, fami- ly neg.
38.	C. S.	5	Non-Tubercular.	Scar. Oint.	—	..	....	neg.	Father tubercu- lar.
39.	R. G.	9	Non-Tubercular.	Scar. Oint.	—	..	....	neg.	Family neg.
40.	W. M.	2	Pneumonia Lobular.	Scar. Oint.	—	..	....	neg.	

TABLE 3.—CASES IN WHICH THERE WERE CLINICAL EVIDENCES OF TUBERCULOSIS. SCARIFICATION.

Case.	Name.	Age.	Diagnosis.	Reac- tion.	Maxi- mum Re- action		Control.	Remarks.
					Pos. + Neg.—	Hours.		
1.	M. J.	11	Pulmonary Tuberculosis.	Scar.	+	48	++	Mother tubercular.
2.	E. S.	7	Pulmonary Tuberculosis.	Scar.	+	70	+	Mother tubercular.
3.	W. L.	14	Pulmonary Tuberculosis.	Scar.	+	48	+	Brother tubercular.
4.	L. DeP.	12	Pulmonary Tuberculosis.	Scar.	—	..	.....	Family negative.
5.	N. S.	8	Pulmonary Tuberculosis.	Scar.	+	40	+++	Mother tubercular.
6.	A. M.	13	Pulmonary Tuberculosis.	Scar.	+	48	+++	Sister tubercular.
7.	E. S.	7	Suspect.	Scar.	+	70	+	Mother tubercular.
8.	H. G.	9	Suspect.	Scar.	+	48	++	Mother tubercular.
9.	E. G.	8	Suspect.	Scar.	+	48	+	Mother tubercular.
10.	G. O.	13	Suspect.	Scar.	—	..	.....	Family negative.
11.	G. F.	7	Suspect.	Scar.	—	..	.....	Family negative.
12.	M. R.	3	Suspect.	Scar.	+	36	+++	Father tubercular.
13.	N. T.	11	Suspect.	Scar.	+	48	+++	Father tubercular.
14.	E. A.	12	Suspect.	Scar.	+	36	+++	Father tubercular.
15.	R. A.	11	Suspect.	Scar.	+	36	+++	Father tubercular.
16.	L. A.	6	Suspect.	Scar.	+	48	+	Father tubercular.
17.	A. A.	8	Suspect.	Scar.	+	48	+	Father tubercular.
18.	E. J.	8	Suspect.	Scar.	+	48	+	Father and mother tubercular.
19.	J. J.	12	Suspect.	Scar.	+	36	++	Father and mother tubercular.
20.	L. H.	4	Suspect.	Scar.	+	48	++	Mother tubercular.
21.	L. P.	9	Suspect.	Scar.	+	24	+++	Family negative.

TABLE 4.—CASES IN WHICH THERE WERE NO CLINICAL EVIDENCES OF TUBERCULOSIS. SCARIFICATION.

Case.	Name.	Age.	Diagnosis.	Reaction.	Maxi- mum Re- action		Degree.	Control.	Remarks.
					Pos. + Neg.—	Hours.			
1.	H. R.	8	Non-tubercular	Scar.	—	..	....	....	Family negative.
2.	T. L.	8	Non-tubercular	Scar.	—	..	....	....	Family negative.
3.	H. B.	15	Non-tubercular	Scar.	+	30	++	neg.	Family negative.
4.	T. C.	12	Non-tubercular	Scar.	—	..	....	....	Family negative.
5.	M. K.	9	Non-tubercular	Scar.	+	48	+	neg.	Mother tubercular.
6.	O. K.	1½	Non-tubercular	Scar.	—	..	....	....	Mother tubercular.
7.	J. K.	4	Non-tubercular	Scar.	—	..	....	....	Mother tubercular.
8.	J. V.	½	Non-tubercular	Scar.	—	..	....	....	Father tubercular.
9.	E. V.	4	Non-tubercular	Scar.	—	..	....	....	Father tubercular.
10.	R. B.	1	Non-tubercular	Scar.	—	..	....	....	Family negative.
11.	M. B.	5	Non-tubercular	Scar.	—	..	....	....	Family negative.
12.	D. S.	2	Non-tubercular	Scar.	—	..	....	....	Father tubercular.
13.	W. S.	13	Non-tubercular	Scar.	—	..	....	....	Mother tubercular.
14.	L. S.	5	Non-tubercular	Scar.	—	..	....	....	Mother tubercular.
15.	J. E.	11	Non-tubercular	Scar.	—	..	....	....	Sister tubercular.
16.	M. B.	3	Non-tubercular	Scar.	—	..	....	....	Father tubercular.
17.	E. C.	14	Non-tubercular	Scar.	—	..	....	....	Father tubercular.
18.	J. C.	9	Non-tubercular	Scar.	—	..	....	....	Father tubercular.
19.	J. H.	3	Non-tubercular	Scar.	—	..	....	....	Mother tubercular.
20.	S. N.	13	Non-tubercular	Scar.	—	..	....	....	Mother tubercular.
21.	M. K.	12	Non-tubercular	Scar.	—	..	....	....	Father and mother tubercular.
22.	J. K.	8	Non-tubercular	Scar.	—	..	....	....	Father and mother tubercular.
23.	F. S.	2½	Non-tubercular	Scar.	—	..	....	....	Father and mother tubercular.
24.	A. S.	14	Non-tubercular	Scar.	—	..	....	....	Family negative.
25.	J. C.	6	Non-tubercular	Scar.	—	..	....	....	Brother tubercular.
26.	P. C.	9	Non-tubercular	Scar.	—	..	....	....	Father tubercular.
27.	L. R.	6	Non-tubercular	Scar.	—	..	....	....	Father tubercular.
28.	A. R.	9	Non-tubercular	Scar.	—	..	....	....	Father tubercular.
29.	B. R.	11	Non-tubercular	Scar.	—	..	....	....	Father tubercular.
30.	W. R.	13	Non-tubercular	Scar.	—	..	....	....	Father tubercular.
31.	R. R.	12	Non-tubercular	Scar.	—	..	....	....	Father tubercular.
32.	J. L.	12	Non-tubercular	Scar.	—	..	....	....	Father tubercular.
33.	W. S.	6	Non-tubercular	Scar.	—	..	....	....	Family negative.
34.	B. M.	4	Non-tubercular	Scar.	—	..	....	....	Family negative.
35.	A. L.	10	Non-tubercular	Scar.	+	48	+	neg.	Family negative.
36.	M. L.	7	Non-tubercular	Scar.	+	48	++	neg.	Sister tubercular.
37.	E. A.	14	Non-tubercular	Scar.	—	..	....	....	Father tubercular.
38.	W. A.	8	Non-tubercular	Scar.	+	48	+	neg.	Father tubercular.
39.	C. P.	1½	Non-tubercular	Scar.	—	..	....	....	Father tubercular.
40.	J. P.	½	Non-tubercular	Scar.	—	..	....	....	Father tubercular.
41.	J. J.	4	Non-tubercular	Scar.	—	..	....	....	Father tubercular.
42.	R. J.	1	Non-tubercular	Scar.	—	..	....	....	Father tubercular.
43.	J. M.	7	Non-tubercular	Scar.	—	..	....	....	Father tubercular.

TABLE 5.—CASES IN WHICH THERE WERE CLINICAL EVIDENCES OF TUBERCULOSIS. OINTMENT.

Case.	Name.	Age.	Diagnosis.	Re- action.	Pos. + Neg.—	Maxi- mum Re- action Hours.	De- gree.	Control.	Remarks.
1.	S. M.	2	Tubercular Peritonitis	Oint.	+	48	++	neg.	
2.	C. S.	2	Tubercular Meningitis.	Oint.	—	..	.....	....	Applied few hours before death.
3.	I. D.	4	Tubercular Hip.	Oint.	+	36	+++	neg.	
4.	H. B.	5	Tubercular Spine.	Oint.	+	48	+++	neg.	
5.	H. M.	8	Tubercular Hip.	Oint.	+	48	+++	neg.	
6.	H. F.	1½	Tubercular Spine.	Oint.	+	48	+++	neg.	
7.	A. J.	2	Tubercular Spine.	Oint.	+	48	+++	neg.	
8.	A. P.	2	Tubercular Spine.	Oint.	—	..	.....	....
9.	W. K.	5½	Tubercular Adenitis, Cer- vical.	Oint.	+	48	++	neg.	
10.	H. E.	6	Tubercular Knee.	Oint.	+	48	++	neg.	
11.	A. S.	6	Tubercular Knee.	Oint.	+	48	++	neg.	

TABLE 6.—CASES IN WHICH THERE WERE NO CLINICAL EVIDENCES OF TUBERCULOSIS. OINTMENT.

Case.	Name.	Age.	Diagnosis.	Re- action.	Pos. + Neg.—	Maxi- mum Re- action Hours.	De- gree.	Control.	Remarks.
1.	M. P.	4	Vaginitis.	Oint.	—	..	....	....
2.	M. H.	12	Vaginitis.	Oint.	—	..	....	....
3.	E. T.	10	Vaginitis.	Oint.	—	..	....	....
4.	L. T.	7	Vaginitis.	Oint.	+	48	++	neg.	
5.	E. B.	9	Vaginitis.	Oint.	—	..	....	....
6.	G. T.	7	Vaginitis.	Oint.	—	..	....	....
7.	A. B.	10	Vaginitis.	Oint.	—	..	....	....
8.	M. G.	8	Vaginitis.	Oint.	—	..	....	....
9.	L. K.	1	Vaginitis.	Oint.	—	..	....	....
10.	L. B.	3	Vaginitis.	Oint.	—	..	....	....
11.	E. M.	10	Vaginitis.	Oint.	—	..	....	....
12.	F. M.	1	Mastoiditis.	Oint.	—	..	....	....
13.	H. K.	2	Gastroenteritis.	Oint.	—	..	....	....
14.	G. S.	3	Dislocated Hip.	Oint.	—	..	....	....
15.	R. S.	½	Gastroenteritis.	Oint.	—	..	....	....
16.	B. M.	6	Congenital Syphilis.	Oint.	—	..	....	....
17.	M. C.	9	Suppurative Arthri- tis, Knee.	Oint.	—	..	....	....
18.	J. M.	7	Genu Varum.	Oint.	—	..	....	....
19.	E. T.	12	Scabies.	Oint.	—	..	....	....
20.	B. M.	2	Feeder.	Oint.	—	..	....	....
21.	S. T.	3	Otitis Media.	Oint.	—	..	....	....
22.	E. R.	2	Otitis Media.	Oint.	—	..	....	....
23.	T. M.		Fractured Leg.	Oint.	—	..	....	....
24.	M. H.	1¼	Pneumonia, Lobular.	Oint.	—	..	....	....
25.	C. P.	13mo.	Pneumonia, Lobular.	Oint.	—	..	....	....
26.	C. M.	2	Pneumonia, Lobular.	Oint.	—	..	....	....
27.	J. C.	11	Pneumonia, Lobular.	Oint.	—	..	....	....
28.	T. VanW.	3	Pneumonia, Lobular.	Oint.	—	..	....	....
29.	L. VanW.	1¼	Pneumonia, Lobular.	Oint.	—	..	....	....
30.	D. VanW.	¼	Pneumonia, Lobular.	Oint.	—	..	....	....
31.	C. W.	2	Pneumonia, R. U.	Oint.	—	..	....	....
32.	C. O.	10	Aortic Insuffic.	Oint.	+	12	++	neg.	
33.	F. S.	12	Epidemic Cerebro- spinal Meningitis.	Oint.	—	..	....	....	Applied 24 hours before death.
34.	F. J.	11	Epidemic Cerebro- spinal Meningitis.	Oint.	—	..	....	....	Applied 2 days before death.
35.	H. L.	8	Cleft Palate.	Oint.	—	..	....	....
36.	R. C.	12	Psoriasis.	Oint.	—	..	....	....

TABLE 7.—CASES IN WHICH THERE WERE CLINICAL EVIDENCES OF TUBERCULOSIS. SCARIFICATION AND DERMO.

Case.	Name.	Age.	Diagnosis.	Test.	Pos. + Neg.—	Maxi- mum Re- action Hours.	De- gree.	Control.	Remarks.
1.	J. K.	6	Suspect.	Scar.	+	24	+++	neg.	Dispensary.
				Dermo.	+	24	++	neg.	Father tubercular.
2.	C. K.	4	Suspect.	Scar.	+	24	++	neg.	Father tubercular.
				Dermo.	+	24	+	neg.	
3.	B. D.	8	Suspect.	Scar.	—	..	.....	....	Mother tubercular.
				Dermo.	—	..	.....	....
4.	D. P.	1½	Suspect.	Scar.	—	..	.....	....	Father tubercular.
				Dermo.	—	..	.....	....
5.	C. P.	4	Suspect.	Scar.	—	..	.....	....	Father tubercular.
				Dermo.	—	..	.....	....

TABLE 7. (CONTINUED)—CASES IN WHICH THERE WERE CLINICAL EVIDENCES OF TUBERCULOSIS, SCARIFICATION AND DERMO.

Case.	Name.	Age.	Diagnosis.	Test.	Maxi- mum Re- action		De- gree.	Control.	Remarks.
					Pos. + Neg. —	Hours.			
6.	E. G.	8	Suspect.	Scar.	—	..	.....	....	Family negative.
				Dermo.	—	..	.....	....
7.	H. F.	13	Suspect.	Scar.	+	48	+++	neg.	Family negative.
				Dermo.	+	48	+++	neg.	
8.	E. G.	8	Suspect.	Scar.	—	..	.....	....	Mother tubercular.
				Dermo.	—	..	.....	....
9.	R. T.	3	Suspect.	Scar.	—	..	.....	....	Family negative.
				Dermo.	—	..	.....	....
10.	H. K.	8	Suspect.	Scar.	—	..	.....	....	Mother tubercular.
				Dermo.	—	..	.....	....
11.	W. K.	3	Suspect.	Scar.	—	..	.....	....	Mother tubercular.
				Dermo.	—	..	.....	....
12.	M. K.	11mo.	Suspect.	Scar.	+	24	+++	neg.	Mother tubercular.
				Dermo.	+	24	+++	neg.	
13.	J. G.	11	Suspect.	Scar.	—	..	.....	....	Mother tubercular.
				Dermo.	—	..	.....	....
14.	B. K.	11	Suspect.	Scar.	+	24	+++	neg.	Brother tubercular.
				Dermo.	+	24	+++	neg.	

TABLE 8.—DETRE DIFFERENTIAL TEST.

Case.	Name.	Age.	Diagnosis.	Test.	Maxi- mum Re- action		Degree.	Control.	Remarks.
					Pos. + Neg. —	Hours.			
1.	N. K.	3	Tubercular Cervical Aden- itis, left.	Differ. T. O.	+	24	+++	neg.	Diag. confirmed by operation.
				B. F.	+	36	+++	neg.	
				Bovine	—	..	.....	....
2.	C. M.	4	Tubercular Meningitis.	Dermo. T. O.	+	24	+++	neg.	Test applied a few hours be- fore death.
				Differ. T. O.	—	..	.....	....
				B. F.	—	..	.....	....
				Bovine	—	..	.....	....
3.	M. K.	7	Tubercular Osteomyelitis, left tibia.	Dermo. T. O.	+	24	+++	neg.	
				Differ. T. O.	+	24	+++	neg.	
				B. F.	—	..	.....	....
				Bovine	—	..	.....	....
4.	M. E.	19	Tubercular Meningitis.	Dermo. T. O.	+	24	+	neg.	Test applied a few hours be- fore death.
				Differ. T. O.	—	..	.....	....
				B. F.	—	..	.....	....
				Bovine	—	..	.....	....
5.	S. A.	21	Tubercular Pleurisy; Tu- bercular Peritonitis.	Dermo. T. O.	+	36	+++	neg.	
				Differ. T. O.	+	36	+++	neg.	
				B. F.	+	36	+++	neg.	
				Bovine	—	..	.....	....
6.	J. G.	24	Tubercular Peritonitis.	Dermo. T. O.	+	36	+++	neg.	Anæmic.
				Differ. T. O.	—	..	.....	....
				B. F.	—	..	.....	....
				Bovine	—	..	.....	....
7.	F. S.	30	Tubercular Knee, left.	Dermo. T. O.	—	..	.....	....
				Differ. T. O.	+	24	+	neg.	
				B. F.	+	24	+++	neg.	
				Bovine	—	..	.....	....
8.	H. K.	22	Tubercular Ankle, right; Abscess of Chest.	Dermo. T. O.	+	24	+	neg.	
				Differ. T. O.	+	24	+++	neg.	
				B. F.	—	..	.....	....
				Bovine	—	..	.....	....
9.	R. M.	29	Tuberculosis of Spine.	Dermo. T. O.	—	..	.....	....
				Differ. T. O.	+	24	+++	neg.	
				B. F.	—	..	.....	....
				Bovine	—	..	.....	....
10.	A. W.	32	Tuberculosis of Spine.	Dermo. T. O.	—	..	.....	....
				Differ. T. O.	+	48	+++	neg.	
				B. F.	+	48	+	neg.	
				Bovine	—	..	.....	....
11.	H. F.	21	Tubercular Hip.	Dermo. T. O.	—	..	.....	....	Bismuth paste treatment, with poisoning.
				Differ. T. O.	—	..	.....	....
				B. F.	—	..	.....	....
				Bovine	—	..	.....	....
12.	T. S.	22	Pul. Phthisis; Pyopneu- mothorax.	Dermo. T. O.	—	..	.....	....
				Differ. T. O.	—	..	.....	....
				B. F.	—	..	.....	....
				Bovine	—	..	.....	....
13.	S. J.	26	Miliary Tuberculosis.	Dermo. T. O.	—	..	.....	....
				Differ. T. O.	+	30	+++	neg.	
				B. F.	+	30	+	neg.	
				Bovine	—	..	.....	....
14.	A. R.	20	Tubercular Adenitis, Cer- vical Maxillary.	Dermo. T. O.	—	..	.....	....
				Differ. T. O.	+	24	+++	neg.	
				B. F.	—	..	.....	....
				Bovine	—	..	.....	....
				Dermo. T. O.	—	..	.....	....

TABLE S. (CONTINUED)—DETRE DIFFERENTIAL TEST.

Case.	Name.	Age.	Diagnosis.	Test.	Maxi- mum Re- action			Control.	Remarks.
					Pos. + Neg. —	Hours.	Degree.		
15.	A. C.	10	Tubercular Hip.	Differ. T. O.	+	24	+++	neg.	Four operations. Discharging sinus.
				B. F.	—	..	.....	..
				Bovine	—	..	.....	..
16.	F. T.	6	Tubercular Hip.	Dermo. T. O.	+	48	++	neg.	
				Differ. T. O.	—	..	.....	..
				B. F.	—	..	.....	..
				Bovine	—	..	.....	..
17.	F. W.	10	Tubercular Hip.	Dermo. T. O.	—	..	.....	..
				Differ. T. O.	+	48	+	neg.	
				B. F.	—	..	.....	..
				Bovine	—	..	.....	..
18.	G. H.	5	Tuberculosis of Spine, Cervical.	Dermo. T. O.	—	..	.....	..
				Differ. T. O.	+	24	+++	neg.	
				B. F.	—	..	.....	..
				Bovine	+	24	+++	neg.	
19.	H. G.	6	Tubercular Knee.	Dermo. T. O.	+	24	++	neg.	
				Differ. T. O.	+	24	++	neg.	
				B. F.	—	..	.....	..
				Bovine	—	..	.....	..
				Dermo. T. O.	+	24	+	neg.	
20.	M. T.	6	Tuberculosis of Spine.	Bovine	—	..	.....	..
				Differ. T. O.	+	24	++	neg.	
				B. F.	+	24	+	neg.	
				Bovine	—	..	.....	..
21.	G. S.	7	Tubercular Hip.	T. O.	+	..	++	neg.	
				Differ. T. O.	+	24	++	neg.	
				B. F.	—	..	.....	..
				Bovine	—	..	.....	..
22.	F. V.	7	Tubercular Hip.	Dermo. T. O.	+	24	++	neg.	
				Differ. T. O.	+	24	++	neg.	Discharging sinus.
				B. F.	—	..	.....	..
				Bovine	—	..	.....	..
23.	S. M.	26	Tubercular Adenitis, Cer- vical.	Dermo. T. O.	+	24	+	neg.	
				Differ. T. O.	—	..	.....	..
				B. F.	—	..	.....	..
				Bovine	—	..	.....	..
24.	F. J.	18	Tubercular Cervical Aden- itis, left.	Dermo. T. O.	—	..	.....	..
				Differ. T. O.	+	24	+++	neg.	
				B. F.	+	24	+	neg.	
				Bovine	—	..	.....	..
25.	H.M.A.	55	Tubercular Cervical Aden- itis, right; Pul. Phi- thisis.	Dermo. T. O.	+	24	+++	neg.	Slight
				Differ. T. O.	+	24	++	neg.	
				B. F.	+	24	+	neg.	
				Bovine	—	..	.....	..
				Dermo. T. O.	+	24	++	neg.	
26.	J. J.	27	Miliary Tuberculosis.	Bovine	—	..	.....	..
				Differ. T. O.	—	..	.....	..
				B. F.	—	..	.....	..
				Bovine	—	..	.....	..
27.	S. W.	21	Tubercular Adenitis, Cer- vical.	Dermo. T. O.	—	..	.....	..
				Differ. T. O.	—	..	.....	..
				B. F.	—	..	.....	..
				Bovine	—	..	.....	..
28.	C. R.	44	Tubercular Knee.	Dermo. T. O.	—	..	.....	..
				Differ. T. O.	+	28	++	neg.	
				B. F.	+	28	+	neg.	
				Bovine	—	..	.....	..
29.	A. K.	22	Tubercular Hip.	Dermo. T. O.	+	26	++	neg.	
				Differ. T. O.	+	26	+	neg.	
				B. F.	—	..	.....	..
				Bovine	—	..	.....	..
30.	T. P.	30	Sacro-Iliac Tuberculosis.	Dermo. T. O.	—	..	.....	..
				Differ. T. O.	+	30	+	neg.	Slight.
				B. F.	—	..	.....	..
				Bovine	+	30	+	neg.	
31.	D. C.	30	Tubercular Hip.	Dermo. T. O.	—	..	.....	..
				Differ. T. O.	+	48	+	neg.	Slight.
				B. F.	+	48	+	neg.	
				Bovine	—	..	.....	..
				Dermo. T. O.	—	..	.....	..
32.	O. F.	28	Tubercular Spine.	Differ. T. O.	+	24	+++	neg.	Slight.
				B. F.	+	24	+	neg.	
				Bovine	+	24	++	neg.	
				Dermo. T. O.	+	..	+	neg.	
33.	J. S.	17	Tubercular Hip.	Differ. T. O.	+	30	+	neg.	
				B. F.	—	..	.....	..
				Bovine	—	..	.....	..
				Dermo. T. O.	—	..	.....	..
34.	S. B.	22	Tubercular Peritonitis.	Differ. T. O.	+	24	+++	neg.	
				B. F.	+	24	++	neg.	
				Bovine	+	24	++	neg.	
				Dermo. T. O.	+	24	++	neg.	

TABLE S. (CONTINUED)—DETRE DIFFERENTIAL TEST.

Case.	Name.	Age.	Diagnosis.	Test.	Maxi- mum Re- action		Control.	Remarks.
					Pos. + Neg. —	Hours.	Degree.	
35.	O. S.	34	Empyema.	Differ. T. O.	+	48	++	neg.
				B. F.	+	48	+	neg.
				Bovine	+	48	+	neg.
36.	S. M.	24	Tubercular Peritonitis.	Dermo. T. O.	—	..	.....	.....
				Differ. T. O.	—	..	.....	.....
				B. F.	—	..	.....	.....
37.	S. S.	26	Tubercular Peritonitis.	Bovine	—	..	.....	.....
				Dermo. T. O.	—	..	.....	.....
				Differ. T. O.	—	..	.....	.....
38.	J. D.	12	Tubercular Adenitis, Cer- vical.	B. F.	+	24	+	neg.
				Bovine	+	48	+++	neg.
				Dermo. T. O.	—	..	.....	.....
39.	O. D.	30	Pulmonary Phthisis.	Differ. T. O.	+	24	+	neg.
				B. F.	+	24	++	neg.
				Bovine	—	..	.....	.....
40.	F. A.	2	Tubercular Adenitis, Cer- vical.	Dermo. T. O.	—	..	.....	.....
				Differ. T. O.	+	24	+	neg.
				B. F.	—	..	.....	.....
41.	J. S.	2	Tubercular Spine, Thora- cic.	Bovine	—	..	.....	.....
				Dermo. T. O.	—	..	.....	.....
				Differ. T. O.	+	24	++	neg.
42.	F. W.	49	Fistula in ano.	B. F.	—	..	.....	.....
				Bovine	—	..	.....	.....
				Dermo. T. O.	+	24	++	neg.
43.	A. K.	6	Tubercular Adenitis, Cer- vical.	Differ. T. O.	—	..	.....	.....
				T. O.	+	24	+++	neg.
				B. F.	+	24	++	neg.
44.	J. G.	4	Tubercular Spine, Cervi- cal.	Bovine	+	24	+	neg.
				Dermo. T. O.	+	24	++	neg.
				Differ. T. O.	+	24	+++	neg.
45.	P. C.	26	Tubercular Adenitis, Cer- vical.	B. F.	+	24	++	neg.
				Bovine	+	24	+	neg.
				Dermo. T. O.	—	..	.....	.....
46.	B. D.	4½ mo.	Feeder.	Differ. T. O.	—	..	.....	.....
				B. F.	—	..	.....	.....
				Bovine	—	..	.....	.....
47.	J. W.	1mo.	Feeder.	Dermo. T. O.	—	..	.....	.....
				Differ. T. O.	—	..	.....	.....
				B. F.	—	..	.....	.....
48.	W. K.	1	Feeder.	Bovine	—	..	.....	.....
				Dermo. T. O.	—	..	.....	.....
				Differ. T. O.	—	..	.....	.....
49.	R. S.	10mo.	Feeder.	B. F.	—	..	.....	.....
				Bovine	—	..	.....	.....
				Dermo. T. O.	—	..	.....	.....
50.	N. M.	1mo.	Feeder.	Differ. T. O.	—	..	.....	.....
				B. F.	—	..	.....	.....
				Bovine	—	..	.....	.....

evident. A negative test in the adult, all circumstances considered, is more valuable than a positive one. The non-value of the scarification in the adult has been pointed out by von Pirquet,¹⁷ von Emmerich¹⁸ and Hamburger.¹⁹

5. The type of the reaction bears no relation to the type of the disease. It is true, however, that the slowly developing, mild reactions

17. Jour. Amer. Med. Assoc., February, 1909.

18. Munch. med. Wochenschrift, 1908.

19. Wiener klin. Wochenschrift, 1908.

occurred in the apparently arrested, cured or old cases. The most active reactions took place in the surgical forms of tuberculosis.

Concerning the Detre, the number of cases examined is not sufficient for conclusions, but it would appear that much information is to be obtained by such a test. The frequency of the old tuberculin producing the dominant reaction would indicate that, therapeutically, one of the filtrates, or a combination, should be employed.

It is a great pleasure to express publicly my appreciation and thanks to my associates, especially Drs. Lewison and Crede of the Dispensary and Drs. Meigs, Scott and Seippel of the County Hospital, for their most valuable assistance.

103 State Street.

DISCUSSION ON THE PAPERS OF DRS. BUTTERFIELD AND TICE.

Dr. S. E. Munson, of Springfield:—Mr. President: Nine years ago I read a paper before this society in regard to bovine tuberculosis as affecting the milk supply. At that time there was scarcely any evidence to show that bovine tuberculosis was transmissible to the human being. After reading that paper I had some correspondence with men of wide experience and observation, at that time saying that they did not believe that bovine tuberculosis was transmissible to the human being. At that time there were a great many who believed it was transmissible to the human being, and I am glad to-day that the prevailing opinion among those who have had opportunities of investigation is that it is communicable to man.

I think the source of our milk supply in each community rests largely upon the physicians, and it is certainly of great importance to the medical profession in their work and in the care of their families that they know something about the milk supply children are fed upon. We physicians at Springfield have had a good deal of difficulty of that kind. Some years ago we had a dairy started there by a man of comfortable means, and the milk he has furnished us has been the best thus far we have been able to obtain. At the present time, there is good evidence that he is no longer holding up the high standard of his milk as formerly, and probably at times, when his milk supply is scant in the winter season, he has bought milk from other dairies. At Springfield we have no examination of the dairy herds that supply the milk to our city, and cities of like size have the same difficulty. The milk is shipped in from the surrounding country without there being any milk inspection. The only source of milk inspection we have is a city chemist, a recent adjunct to our municipal administration, and there is no test made other than that the dairyman has a certain percentage of fat in his milk. There is no examination of the ice cream that is made from these various supplies of milk sold in our city. I suppose the same condition prevails elsewhere. I contend that with a city of our size a man should not be able to market his milk until there is inspection of his dairy, and nine or ten years ago, at the time I read my paper, there was a state law whereby the State Veterinary was empowered to go out and slaughter tuberculous animals; but that law was repealed on account of the outcry of the farmers. There has been some recent legislation enacted, and I hope gradually the cows from which the milk supply is obtained for our cities will undergo this inspection or tuberculin test again. I think physicians scarcely realize the number of children and infants infected through milk, and inasmuch as we know there is no better food for the infant, or in caring for children, than milk, it behooves us to look to the source from which we obtain our milk.

Dr. E. Fletcher Ingals, of Chicago:—I want especially to commend the paper of Dr. Tice, and I hope the members of the society will read it carefully when it is published, because it was concise, and there was much in it that might be overlooked.

Remembering that practically every adult has tuberculosis, it is very important that we should be able to make our diagnosis of active tuberculosis as soon as possible. It seems to me the statements of the author of the paper were complete and conclusive, that these cutaneous tests are of value in determining whether or not the case is active. Perhaps we can not prove that, but taken in connection with the other means of making a diagnosis, it is of much value. This ought to be taken in connection with what was said by Dr. Butterfield in his paper, who suggested that the tuberculin treatment should not be used indiscriminately. I have known practitioners who would make the cutaneous or other test, and if they found tuberculosis present they would begin with the tuberculin treatment at once. That is a most pernicious practice, and I hope these papers will be carefully considered by the members, so that practitioners will not run wild on this treatment.

Dr. W. C. Bouton, of Waukegan:—Personally, I have had very little experience with the treatment of tuberculosis by tuberculin, but my office partner, Dr. Watterson, has had a good deal of experience with the disease and the Moro test. He developed tuberculosis himself five years ago, went to Colorado and after about a year all symptoms of the disease disappeared. He returned to practice in Waukegan last spring, started a tent colony, has had quite a number of patients and has obtained good results. He has used the Moro test in every case and I think, with possibly one or two exceptions, he has obtained a positive result in all patients who showed any symptoms of tuberculosis from the physical examination. Some patients came to him in whom there was a suspicion of tuberculosis, as they were a little anemic or run down, but in whom there were no physical signs elicited and there was no result from the Moro test. The Moro test will also give results in arrested cases, because the Doctor has tried it successfully on himself and he has not had a symptom for over two years. He has examined his sputum repeatedly for tubercle bacilli, but has been unable to find any. He has been in perfect health the last two years but gets a positive result from the Moro test. He had a patient come to him a few weeks ago with a temperature. He tried the Moro test, which was negative. He found that the patient was running an afternoon temperature. The man had not been feeling well and he believed the man was developing typhoid. He tried the Widal test, but it was negative. However, by watching the patient carefully and examining the sputum a couple of weeks ago, this examination revealed tubercle bacilli and at the same time the Doctor got a positive result by the Moro test.

Mr. Butterfield (closing the discussion on his part):—I want to emphasize the point of increase in weight, with general improvement, which was much more striking in the group of the first series of twenty-three, as compared with the latter group, in which no tuberculin was used. The results are so striking that we could not help but compare them.

In connection with the use of Koch's B. E., I would state that in making a diagnosis we start in with one-tenth of a milligram, increasing by one-fifth of a milligram every third day until one milligram is reached, then increasing from one to two or three milligrams.

It is hardly necessary to use higher doses because a reaction is usually obtained in positive cases with the smaller doses.

Dr. Tice (closing the discussion):—I would like to say a few words in regard to Dr. Butterfield's paper, although the discussion has been closed. It is only recently that any attention has been paid to the differential diagnosis between the bovine and human type of infection. It has been quite the custom in the treatment of tuberculosis to use the old form of tuberculin in all forms of the disease. Unquestionably, this must be held accountable for so many failures, and through the recent efforts that are being made we probably will have a brighter future in the treatment of tuberculosis with tuberculin. It was observed by the experiments of Romberg and others that human tuberculosis, due to the type of human bacillus, was practically impossible in some of the lower animals, particularly in the cow. On this assumption, Spengler, of Germany, conceived the idea of attempting to make a clinical diagnosis of the type of in-

fection present, and administer the appropriate form of tuberculin. In doing this he has subdivided his cases into those where the bacillus can be easily obtained, either from the sputum, a discharging sinus, from the feces, the blood, or by aspiration; and, second, into those cases where tuberculosis is hidden. It is in the second type that the diagnosis is attended with difficulty. His attempt to make a differential diagnosis consisted in the subcutaneous use of various forms of tuberculin. For instance, he uses the filtrate of the human type of bacillus, and if the case reacts quite actively or violently, it is an index of the existence of the human type of the disease. On the other hand, if the bovine gives a more active reaction, then the bovine type of infection is present. When this occurs, he uses the opposite form of tuberculin. If the bovine acts violently he uses the human type, for the reason that there seems to be an antagonism between the two types of the infection. It is not only consistent to use tuberculin of the bovine type in a bovine infection, but it is now suggested by Spengler, of Germany, by Raw, of England, and Pottenger, of our own country, that much better results can be obtained by the use of the bovine tuberculin in the human type of the infection. This may seem startling. First of all, it is opposed to the teaching of immunity. Second, we would hardly expect the employment of a different form of tuberculin to produce as good an effect as the appropriate tuberculin, but, nevertheless, a grain of experience is better than a ton of theory, and conditions certainly justify this theory. So at the present time there is a strong tendency to use the bovine form of tuberculin in the human type of infection, as has been emphasized in the results of the test by Detre, which is only another attempt to determine the form of infection and the appropriate tuberculin to use in the treatment. Pottenger, in making his diagnosis, if he uses too large a dose of the bovine form of tuberculin and gets a violent reaction, will usually administer the old tuberculin or the filtrate of the human type, and at once the temperature falls, and all of the untoward symptoms and signs are immediately neutralized.

THE SERUM TREATMENT OF EPIDEMIC CEREBROSPINAL MENINGITIS.*

FRANK SPOONER CHURCHILL, M.D.

Assistant Professor of Pediatrics, Rush Medical College (in affiliation with the University of Chicago).

The bacteriology of meningitis is most varied and cases may be divided into two groups, the tubercular and the non-tubercular. The tubercular cases are due to invasion of the meninges by the bacillus of tuberculosis, the non-tubercular to invasion by a great variety of organisms. The great majority of the latter group consists of cases due to the diplococcus intracellularis of Weichselbaum, 80 per cent. of non-tubercular cases being due to this organism. It is familiarly known as epidemic meningitis. For the treatment of this particular form of meningitis we have now had for about two years a specific serum evolved by Simon Flexner. It is with this type of meningitis, and this alone, that the Flexner serum is effective. It is useless in all other forms. This statement seems necessary in view of the requests which have been made of me to use the serum in tubercular meningitis, in non-tubercular meningitis due to the pneumococcus, to the streptococcus—e. g., in head injuries and in meningitis occurring in the course of the various infectious diseases and of the intestinal infections. The specific nature of

* Read at the Fifty-Ninth Annual Session of the Illinois State Medical Society, Quincy, Ill., May 18, 19, 20, 1909.

the serum must be borne distinctly in mind. It will do no more good in a pneumococcic or streptococcic meningitis than will diphtheria antitoxin in a pneumococcic or streptococcic tonsillitis.

The development of the serum is interesting. Flexner, studying the New York epidemic of meningitis in 1894, sought to influence favorably the course of the disease produced experimentally in animals by antisera prepared in several kinds of animals from *diplococcus intracellularis*. His first reports showed that the course of the disease in guinea-pigs and monkeys could be modified favorably and animals saved from the fatal effects of the *diplococcus*.

Subsequently Flexner and Jobling developed a *diplococcus* antiserum prepared from the horse, which now has been used for about two years in the treatment of epidemic meningitis in man. They have collected up to date about 500 cases, and the results in these cases justify the opinion expressed by them in an earlier publication that "it is our belief that the analyses of histories of cases of epidemic meningitis which have been presented furnish convincing proof that the antimeningitic serum, when used by the subdural method of injection in suitable doses and at proper intervals, is capable of reducing the period of illness, of preventing, in large measure, the chronic lesions and types of the infection, of bringing about complete restoration to health in all but a small number of cases of the recovered, thus lessening the serious, deforming and permanent consequences of meningitis, and of greatly diminishing the fatalities of the disease." Their cases, taken as a whole, show a mortality of 25 per cent.; in a few series of cases, where treatment was begun within the first three or four days, the mortality was 11 per cent. Furthermore, among the 75 per cent. of recoveries, there were few of the serious sequelæ generally noticed after this infection. Hitherto the mortality in epidemic meningitis has ranged from 75 per cent. to 80 per cent., and among those living the persistence of serious sequelæ has been so great that the survival of the patient has been considered unfortunate. In other words, treatment of this infection by the Flexner serum has reversed the proportion of deaths and recoveries.

I have had the opportunity of watching the effect of the serum upon 41 cases of meningitis, 29 of which have been proved to be of the meningococcic type. Of these 29 proven cases, 16 have recovered, 13 have died—a mortality of 44 per cent. Closer analysis of the series shows that of 16 cases receiving the serum within the first week 6, or 37 per cent., died; of these six 3 were fulminating cases and died within the first two days, the fourth was a bartender, aged 43, and the other two were not closely followed up but received each only one dose of the serum.

This series of cases represents only one of many series, reports from all of which are sent, from time to time, to Flexner for analysis by him. His figures, therefore, are a better average test of the serum than are my smaller ones. It will be noted that the average mortality in my series is much higher than in the grand total of all series. I attribute this higher mortality in my series to the fact that many of the patients were treated in their own homes, at widely separated points, in

three different states; hence the difficulty of closely following them and giving repeated doses of the serum. On the other hand, those cases treated directly under my eye, in hospital, as a rule have done better than those treated at home. It is the latter group which have raised the mortality rate. I have, therefore, come to the conclusion that it is extremely desirable to send cases of meningitis to the hospital; they can be watched more closely, the serum can be given more persistently and thoroughly; furthermore, more exhaustive and extensive laboratory investigations, as to blood, spinal fluid, etc., can be carried out; the advisability of these investigations is especially great in these early days of the serum, when more accurate knowledge as to its exact action is desired.

The effect of the serum upon the general course of the disease and upon the spinal fluid is interesting. Even after the first dose the general well-being of the patient is improved, the temperature abates, not infrequently dropping suddenly, termination by "crisis," the mentality clears and the whole clinical picture undergoes the most astonishing change. The number of leucocytes in the spinal fluid diminishes, the diplococci, at first abundantly numerous outside the cells, become "phagocytosed," and at the second or third puncture are seen to be much more numerous within the leucocytes and finally disappear altogether.

It is not the object of this paper, however, to describe in detail these phenomena; rather, I wish to dwell upon the importance of early diagnosis and to emphasize certain points in the administration of the serum. Early and exact diagnosis is vital. To accomplish this lumbar puncture is necessary. We may all recognize a meningitis clinically; it is impossible to determine its type during life without bacteriologic examination of the spinal fluid—i. e., without lumbar puncture. This, then, is the first point. Furthermore, it has been shown that patients coming early under treatment have a much better chance of recovery than those first receiving the serum late in the disease. Hence we must arrive at an exact diagnosis in a case of meningitis as early as possible.

TECHNIC.

The method of giving the serum is important and I now describe it in detail:

All the active workers with the serum are unanimously of the opinion that in order to get the best results it must be brought closely in contact with the pathological seat of the disease and that this can best be done by a lumbar puncture and injection of the serum into the spinal canal. It is useless to give it subcutaneously. After study of my own cases and those of other observers I have come to the following conclusions as to the method of using the serum:

In all cases which clinically resemble meningitis we must do a lumbar puncture; for this purpose we may use the needle of either a large antitoxin syringe or of a large aspirator, holding at least 30 c.c., the minimum dose to be given. Both patient and apparatus, of course, are to be surgically clean. Have the serum ready for injection. The puncture is to be made according to the usual rules laid down in text-books

—i. e., in the third or fourth lumbar space, close to the spine, this point being determined by the imaginary line running from crest to crest of the ilia. The needle once in the spinal canal, the fluid begins to flow out; rarely is there any obstruction from clogging of the needle; if so, clear it with the obturator. Note the pressure of the fluid, if possible, with the sphygmomanometer, or, roughly, by counting the number of drops per minute. Note also its turbidity and color.

Collect a few drops of the fluid on clean glass slides for immediate staining and microscopic examination. Also inoculate several test-tubes of culture media by allowing the fluid to trickle directly over the media: finally collect the remaining fluid in a sterile test-tube for counting the contained leucocytes and centrifuging for further examination. Evacuate in all 30 to 45 c.c. if possible. If it be the least bit cloudy or turbid, inject the serum at once without waiting to learn the result of even the smears, injecting as follows: To the needle still in the spinal canal attach the syringe previously filled with the serum (warmed to about the body temperature). Inject slowly, using only gentle pressure in forcing down the piston; give 30 to 45 c.c., except in small babies, where a smaller amount may be used. Thirty c.c. may be given, even if the amount of spinal fluid removed is less than this. It is desirable, though not necessary, to remove spinal fluid equal in amount to the serum to be given.

EXAMINATION OF THE SPINAL FLUID.

The spinal fluid should be examined immediately; the glass smears are stained by the Gram method and examined for both cellular elements and organisms; care should be taken to note the relative number of diplococci within and without the leucocytes. Fortunately the smears are fully as reliable as the cultures; hence we do not have to wait long for an exact diagnosis. The cultures should, of course, be incubated and examined later. The total number of leucocytes in the spinal fluid should be counted, by the Thoma-Zeiss apparatus, as soon after evacuation as possible.

REPETITION OF THE SERUM.

If the bacteriologic examination shows the presence of the diplococcus, subsequent injections should be given. In the earlier days of the serum it was customary to wait, if improvement followed the first injection, until unfavorable symptoms developed—e. g., increased temperature, great restlessness, pain, headache, etc.—and then to give the second dose. Subsequent observations, however, especially by Dunn, have shown that better results are attained by giving the serum daily for three or four successive days, regardless of the clinical and bacteriological progress of the case. The serum can do no harm, and this concentrated method of giving it is undoubtedly better than waiting for symptoms to arise and then hitting them. In severe and fulminating cases the serum should be given in from 12 to 18 hours after the first and 45 c.c. should be given. In several instances this amount of serum has been injected without bad results, even though less than this amount of fluid had been removed.

Having thus given our first series of three or four doses on successive days we may pause and note results; as a rule improvement will be seen, both clinically and bacteriologically, and no further injections will be necessary, at least in patients coming early under treatment. But if, after an interval of a day or two, untoward symptoms still persist, another series of doses should be given daily, perhaps for two days, perhaps for four days, then another pause be observed. This process, of alternate giving and withholding of injections, may be continued until either symptoms have ceased or bacteria have entirely disappeared from the spinal fluid or the chronic stage has been established. As a rule it will be found that the diplococci disappear comparatively early and that we may then cease our injections. If the serum is to be effective, it will be so early in the disease, after a few doses. If, however, the organisms persist in the spinal fluid for a long time, occasional doses should be given. In all cases, whether those recovering completely or those running on into the chronic stage, lumbar puncture should be done from time to time until no organisms are found, either in smears or cultures. We must leave our patient with a sterile spinal fluid.

Relapse should be treated as fresh cases. Certain complications, if due directly to the meningococcus, may be an indication for the local use of the serum. Thus in one of my series, a severe arthritis of the knee, proved by bacteriological examination of the aspirated fluid to be due to the meningococcus, received two doses of 15 c.c. each, given directly into the joint, with immediate relief to the pain and apparently permanent improvement. Cushing has reported a similar case.

I am much indebted to the various physicians who have given me the privilege of studying their cases of meningitis.

SUMMARY.

The main points in this paper may be briefly summarized as follows:

1. In all cases clinically suggesting meningitis do a lumbar puncture as early as possible.
2. If the fluid thus obtained be turbid, immediately inject at least 30 c.c. of Flexner serum directly into the spinal canal, without waiting to hear the bacteriological report of the fluid.
3. Examine the spinal fluid bacteriologically. Smears are more important than cultures. If diplococcus intracellularis be found, repeat the injections daily for the three or four following days; in severe cases give the second dose 12 hours after the first.
4. After the first series of doses, wait two or three days, and, if necessary, repeat the series.
5. The serum is a specific and of value in meningococcic meningitis only.
6. It is useless to give the serum subcutaneously.

439 North State Street.

DISCUSSION ON THE PAPER OF DR. CHURCHILL.

Dr. S. E. Munson, of Springfield:—Mr. President: Through the courtesy of Dr. Churchill I had the privilege of using Flexner's serum in two or three cases of spinal meningitis. One of these cases was moribund at the time the serum

was injected, and died within an hour or two afterwards. I speak of this as being a case of cerebrospinal meningitis, owing to the character of the spinal fluid and the differential cell count, particularly as to turbidity, and so forth.

The second case I saw with another physician who had called me to administer the serum. It was clearly evident from the history that this was a case of tubercular meningitis, and upon spinal puncture the spinal fluid was found to be perfectly clean. After the fluid stood for twelve hours a fine coagulum, as described, was found in the fluid. Upon removing the coagulum and staining tubercle bacilli were found to be very numerous.

The third case was unmistakably one of cerebrospinal meningitis, which I reported to Dr. Churchill. This case received the serum at about 3 o'clock in the afternoon of the fifth day of the disease, and at about 12 o'clock at night the temperature became normal, with profuse sweating, and after that time there was no rise of temperature. This patient gradually improved and in about six weeks returned to school again, recovered. I can assure you it was a very severe type of fulminating cerebrospinal meningitis.

There is much improvement in regard to the examination of the spinal fluid, and that particularly as to its character. As stated by Dr. Churchill, we should not wait for a microscopical examination before using the serum if the fluid is turbid. If there is any turbidity of the fluid, it is good evidence that the case is not tubercular. In my case of tubercular meningitis the spinal fluid was absolutely clear and the coagulum well formed. The examination and staining of the coagulum for tubercle bacilli will, of course, make the diagnosis clear. The differential cell count is of great importance. In the cerebrospinal or epidemic variety of disease the polymorphonuclears largely predominate, ranging from sixty to eighty per cent. In the tubercular variety the mononuclears predominate to the same per cent. This is also important, and, as the essayist suggested, examination and staining of the fluid immediately after it is withdrawn from the spinal canal are of much greater importance than examination after twelve to twenty-four hours. In fact, if the spinal fluid is placed in an ice-chest and allowed to remain there over night, you would not be able to obtain a culture of the diplococcus under any circumstances, as they are often difficult to find. Furthermore, it is of great importance to administer the serum subdurally or intraspinally, because it is the consensus of opinion that subcutaneous injection of the serum is of no importance. The serum, instead of being antitoxic, as the other serums, has not been found to be so to any great extent by demonstration, but bacteriolytic, that is, when coming in direct contact with the diplococci, they are destroyed. That is a good point to remember also.

Dr. Frank Billings, of Chicago:—This excellent paper should not go by without more discussion from the standpoint of experience. In quite a number of Dr. Churchill's series are the cases which we have treated at the Presbyterian Hospital. Anyone who has seen cerebrospinal meningitis treated under the old methods by drugs or hygienic measures alone will be struck with the specificity of this treatment when they have had some experience with it. I want to relate two cases to show how quickly it manifests itself.

A little over a year ago we had a Greek between twenty and thirty years of age brought in from South Chicago. He was so nearly unconscious that he did not recognize anything. He was unable to speak English, but manifested pain by placing his hand at his head. His muscles were all rigid. There was opisthotonos. It looked like meningitis. Spinal puncture was made, and a drop of the fluid obtained, which showed the meningococcus. We happened to have serum and immediately injected it. Within twelve hours of that time the fellow sat up in bed. He knew that something was applied to his back. He indicated by motions that pain was gone. His muscles were less rigid, and he patted his back, indicating that he wanted some more. He had subsequent injections and made a steady recovery.

We have a patient now under treatment, and I suppose Dr. Churchill has included it in his series of cases.

Dr. Churchill: No, it is not included.

Dr. Billings: This patient was a boy, another Greek, twenty-six years of age, and was brought into the hospital on a Monday. Twenty-six hours preceding his admission he was taken with headache. When admitted he was semi-conscious. His muscles were rigid, his head retracted, his belly scaphoid, and the right external rectus was paralyzed. Immediately, spinal puncture was made, and some fluid obtained. We had none of the serum in the hospital at the time, but the diagnosis was made from the spinal fluid. There was one depot at the Michael Reese Hospital, to which my interne went at once and secured some serum. The same night 30 c.c. were injected. His symptoms were not much relieved by Tuesday morning. A second spinal puncture was made near the first injection, and over 30 c.c. of spinal fluid was withdrawn. The next day again about 40 c.c. was withdrawn from the spinal canal, and 45 c.c. of serum injected. By this time the boy showed greater improvement. By Wednesday the paralysis of the right external rectus had diminished very much. He was conscious, talked in broken English, and expressed himself as feeling better, but still had some headache and stiffness of the muscles of the neck especially. Since that time he had injections every day for five days up to Saturday, when he had his last injection. Yesterday morning his temperature was 99°; his pulse was below 90; his respirations were normal. He still showed rigidity of the neck muscles, and some of the erector spinæ muscles were stiff, and his Kernig sign was still present. Other than that the boy seems very much better. And the remarkable thing was the effect upon his leucocytes in the blood and in the spinal canal. Dr. Churchill spoke of the leucocytes in the spinal canal. When the boy came in, his white blood count was 23,000; after the first injection it fell two thousand; by the next day it had gone to 32,000, then it fell steadily, and the count day before yesterday was 10,000 leucocytes in his blood per millimeter. The spinal fluid contained 13,000 plus white cells per cubic millimeter when he came in. Yesterday there were 1,000, so you see the infection has diminished, as manifested by the leucocyte reaction in the blood and by the number of leucocytes in the spinal canal. That method of estimating the infectivity of the spinal fluid is a good one. We used it first in the Presbyterian Hospital. This consists in counting the leucocytes in the spinal fluid with the white blood counter, and with each subsequent withdrawal of fluid and count, one may more accurately ascertain just what the condition of the spinal fluid is. Of course, it may clear up and still the patient go on to a fatal ending, because of the implication of the brain with the meninges.

There is one very important point which I would like to mention, namely, just as it is in diphtheria, when antitoxin is given early, so in this disease the serum must be given early, when its specific and curative effect is much more sure than if it is given late. The same rule applies here as applies in diphtheria. If this is a specific serum for epidemic cerebrospinal meningitis, then certainly it will do no good in any other bacterial form of meningitis. It will do no good in the tubercular form, the pneumococcic form, or any other form, but this one. Therefore, before going on to multiple injections into the spinal canal, one must prove by bacteriologic examination of the spinal fluid that he has this particular form of meningitis to deal with, otherwise it would be wasteful and unnecessary to hold out to the friends.

Dr. John M. Dodson, of Chicago:—There are one or two statements which Dr. Churchill makes about which I should not be inclined to be so positive, and I should go a little further than Dr. Billings has done as to the advisability of injecting the Flexner serum only after a diagnosis has been made. It should take but a few minutes, an hour or two at most, to ascertain whether the cerebrospinal fluid contains diplococci or not. One ought not to take cases of this sort without being prepared to make such examinations, and, as Dr. Churchill has well said, it is unnecessary to wait for a culture, cover-slip preparations being quite as reliable. There does not seem to me to be the same urgency in the matter of minutes in the administration of this serum that obtains in a case of diphtheria. Rarely does one see a case of this sort until the second or third day, and usually not until the end of four or five days, and the waiting of an hour or two

to inject the first dose of serum is not material. It is not like diphtheria, where one must wait often twelve or twenty-four hours to establish the diagnosis by culture methods. I believe we shall do better in the present status of serum-therapy, in view of the results already secured, if we establish the diagnosis before we make the injection. I am not certain that this serum is absolutely unattended with unpleasant results. Already in these cases of Dr. Billings', after one ordinary injection of the serum, a skin eruption was seen. There is a reaction. In one case seen in my wards last autumn one of my assistants made an injection of the Flexner serum in a case of tubercular meningitis. There was a distinct intensification of the symptoms after that injection. I think Dr. Churchill does not agree with me about that case, but I am very certain about it. It stands to reason that this should sometimes occur. If the mere withdrawal of the fluid under pressure from the spinal canal is attended with great amelioration of the symptoms, the injection of an additional amount of serum, or of fluid of another sort, may intensify the symptoms. If we can avoid the injection, in the case of tubercular or other forms of meningitis, by knowing what we are doing before we make the injection, I think it is better.

Again, I would not be so positive in stating that the injection of the serum anywhere else, except in the spinal canal, is of no advantage. In one case we had a year ago this spring in the hospital, the last injection was made subcutaneously. It seems to me that the history chart and my recollection of the case go to show that the same amelioration of symptoms followed that injection as followed the intraspinal injection. I would not use that as an argument, however, for employing the serum subcutaneously. But the point is this: The diplococcus infection may be a blood infection, and not a meningeal infection at all. Two or three cases of that sort have been reported where the diplococcus intracellularis has been found in the blood, severe symptoms being present, and repeated examinations failed to find it in the spinal canal. If the serum has a direct action by contact with the diplococci, in these cases the logical thing would be to inject the serum intravenously or subcutaneously, and I take it, in such unusual cases, we have a combined intraspinal and systemic infection. The indications in such case would be for a combination of subcutaneous and intraspinal injections, although the latter are much more effective in the ordinary forms of the disease. The operation is far simpler than is usually thought. It is an extremely easy matter to make lumbar puncture. The danger is slight, but I think we ought to move with reasonable conservatism, and where it is possible to make a diagnosis within an hour or so, I feel much better satisfied to know that I am dealing with a *diplococcus meningitis* before using the serum.

Dr. Churchill (closing the discussion):—It was a great temptation to go into an account of the clinical course of the diseases in my paper, but I purposely left it out, on account of the limited time at my disposal.

There are one or two points I would like to speak of; first, the course of the disease is followed by a drop in the general leucocytes in the blood and the leucocytes in the spinal cord, etc. There is a remarkable parallelism, if you compare them, between the drop in the leucocytes of the blood and the drop in the leucocytes in the spinal fluid. There is a drop in the temperature, especially in the cases terminating by crisis. We have a drop in temperature from 104° to normal, accompanied by a fall in the number of leucocytes.

Dr. Munson alluded to the cellular contents of the spinal fluid. The cells undergo a curious sort of change later on. At first, the polynuclear type predominates largely. If the case progresses favorably, future punctures show a diminution in the number of polynuclears, and an increase in the number of mononuclears. Rigidity of the muscles persists in a most curious way, even after general improvement in the condition of the patient takes place. It is a curious sight to go into the Children's Ward, see their heads retracted, still in a condition of opisthotonos, lying there and smiling and playing with their toys.

With regard to what Dr. Dodson said, I can not agree with him. He remarked that lumbar puncture is a very easy procedure. If it is, why not resort to it? In regard to the serum being used subcutaneously, I wish to say that Flexner

and his clinicians insist that it must be given subdurally, and that it is useless to give it subcutaneously; in the case which Dr. Dodson alludes to at the Presbyterian Hospital, and which I had the opportunity of following, through the courtesy of Dr. Dodson, if you will take the chart and study it carefully, it will be evident that while there was some apparent letting-up of the symptoms after the subcutaneous injections, the improvement was not permanent. The temperature went up again shortly afterwards; whereas, when the serum was given in the spinal canal, the improvement was lasting. Another objection to giving the serum subcutaneously is that it becomes too much diluted when administered in that manner, and does not act in such a concentrated way as it does when it is given directly into the spinal canal. It seems to me the evidence is overwhelmingly in favor of giving the serum by way of the spinal canal. The diplococcus has been found in the blood of patients with epidemic meningitis in about 25 per cent. of the cases.

The points I want to emphasize mostly in this paper are: Get hold of these cases just as early as we possibly can, make a positive diagnosis, inject the serum into the spinal cord, repeat it, and don't be afraid of it.

RACE BREEDING.

JULIUS GRINKER, M.D.

Professor of Nervous and Mental Diseases, Chicago Postgraduate Medical School.
CHICAGO.

Rarely is a physician consulted on the vital topic of "how can I raise a good human animal?" When such query is put by the intelligent parent he often makes the surprising discovery that his family adviser is as little prepared to grapple with this problem as he is himself. To supply the practitioner with some useful arguments for such an emergency is the object of the following remarks. They contain nothing new or startling, but are my views, in conformity, I believe, with those competent to speak on this interesting and important subject.

To begin at the primal source of good or bad offspring, we must utter a word of caution in the matter of proper mating: No one should be permitted to marry who is a physical or mental cripple. If the individual can not or will not be persuaded to voluntarily desist from an unfit union, the state must interfere. Laws must not only be passed, but also enforced, which will require a certificate of health before a marriage license is issued. Those unfit to marry because of existing physical or mental infirmities should be informed that they are doing an act of charity to unborn generations by remaining unmarried.

Far from underestimating the greatest of all passions, love, I regard health of prime importance. Think of the disastrous consequences of a union between the tubercular and the epileptic, the neurotic and the insane! Love, though a great blessing in this loveless world of ours, should not be converted into a distributor of the seeds of ruin and decrepitude among the generations who are to follow us. The first thing to be demanded of each of the contracting parties in the business of race-building is a clean bill of health. Next, a family record of freedom from the various hereditary degenerative tendencies, is to be produced. And finally, if temperament and disposition do not stand in the way, little

Cupid may be consulted instead of Bradstreet or Dunn. And now I may be confronted with the apparently just question, "What business does the state have to interfere with my individual private rights?" The answer is that the act of marriage has long been recognized as a state institution. Upon the family rests the entire superstructure of our civilization. Primitive man and, let us not be deceived, even civilized man, is by nature a polygamous animal. The state compels man to restrict himself to monogamy. This is quite necessary, because the state wants every child to know its father, who is to support it during the period of helplessness. If the state has a right to restrict a man to one wife and a woman to one man, in each instance, why not to a healthy one?

I shall endeavor to adduce my reasons for this position, but at this point the questions of heredity and environment need discussion. Throughout the animal kingdom every living being is the offspring of another being, which latter must have come down in an unbroken chain from still other beings. We are here because, first, in numerous generations since man appeared the living matter has been transmitted from parent to offspring in an uninterrupted series, and, second, because we were able to withstand the changing environments with their tendencies to destroy us. For the production of proper offspring, then, two things are essential: First, a good heredity, and, second, a favorable environment. Clearly, then, each must claim our earnest attention.

Heredity: We not only inherit the physical constitution of our forbears but, most particularly, their mental characteristics. The living speck of protoplasm in which human life has its beginning contains the life history of all the generations that preceded it, both on the father's and mother's side. Not only do we inherit a certain type of physical eye, but we also look upon the world through our ancestors' mental vision.

Environment: The product thus transmitted through a long line of ancestors is not fixed or finished. On the contrary, it is plastic and capable of being molded into various shapes. The early stages are merely transitional, and, beginning with the period of formation of the microscopic mass of protoplasm up to the completion of the fully developed "lord of creation," an infinite number of influences are constantly at work molding the product into its final shape. All this has long been understood by cattle raisers who make a study of progeny and stock-breeding with the happiest results, but the human animal rarely applies his science to his own case.

What shall be done with the child to whom its parents have already transmitted an inferior physical or mental constitution? My answer is: By a well directed course of training and education we may overcome many inherent faults. But, unfortunately, the training of the child with poor heredity is commonly left to the very persons who gave it life. Can there be anything more perverse and harmful than to leave the impressionable child with a faulty heredity in an atmosphere, every breath of which exhales instability? Imagine, further, the effect upon a child's brain who is treated daily to the sight of a drunken father, or an immoral mother, or who must be a witness to the petty quarrels and disputes of its excitable parents! Incompatibility among married couples

is not only the cause of a great deal of unhappiness for themselves, but almost invariably tends to create nervous and mental instability in the offspring. And, again, children who are raised by too strict a father and too gentle a mother often acquire a moody, vacillating character. It would be far better to have the children removed from such parents than to allow them to grow up as their miniature copies. The state should have the right to step in and insist upon taking proper care of its future citizens if the parents prove themselves incompetent for this task.

Permit me to mention a few sins of omission and commission in the bringing up of children:

First. I believe the American custom of allowing meat to young children decidedly bad. No child under 5 years should ever receive meat and after that age it should be allowed small quantities only. The principal article of diet in childhood must always remain milk. Coffee, tea, or alcoholics should never be given to children, particularly alcohol, which is a nerve poison at all times and especially in childhood.

Second. Accustom the child's body to variations of temperature. "I am too cold" and "I feel too warm" are expressions of nervousness and require mental discipline. Children must be compelled to take walks in all kinds of weather.

Third. Insist upon exercise, such as turning, baseball and football. But a note of warning must be sounded against encouraging the gambling spirit by permitting the boy to cultivate a liking for races. Many of our race-track gamblers acquired their gambling propensities early in life.

Fourth. Steel the child against pain and discomfort. Bodily and physical pain are usually aggravated by sympathy. Judicious intentional disregard of a child's imaginary complaints is good treatment. Intolerance of noise is an early sign of nervousness. When a child shows the slightest disposition to such intolerance combat it promptly by designing for it noisy games. Normal children seem to enjoy the ear-splitting noise of the play-room and the street and abnormally sensitive ones should be trained to tolerate them.

Fifth. Teach children to control their emotions. Pleasure and pain are relative terms. Many things which are at first unpleasant may by training be made to give us a sense of satisfaction later. We must begin at the table. There should be no dislike for certain foods. The child must eat everything except articles unfit for its age. The emotion of anger should be carefully attended to; particularly the too ready tendency of a youngster to make fists or call names whenever displeased. The child should be refused some things.

Sixth. Teach the child absolute fearlessness. Children should sleep in dark bedrooms and must be trained to brave thunder and lightning. Do not fill their little brains with ghost stories, nor teach them the horrors of hell. It is well not to give them religious instruction until they are old enough to understand its significance.

Seventh. "Little folks" should not accompany their parents on their annual travels and long vacations. Their small and undeveloped brains are not ready to assimilate the many new impressions. Besides, they

become supersaturated with pleasure and will have nothing more to anticipate. Why not leave something for the future?

Eighth. Inculcate a love of labor for its own sake, not for mere reward. The great physiologist, Prof. Jacques Loeb, under this caption, says: "Human happiness is based upon the possibility of a natural and harmonious satisfaction of the instincts. One of the most important instincts is usually not even recognized as such—namely, the instinct of workmanship. Lawyers, criminologists and philosophers frequently imagine that only want makes man work. This is an erroneous view. We are forced to be active in the same way as ants or bees. The instinct of workmanship would be the greatest source of happiness if it were not for the fact that our present social and economic organization allows only a few to gratify this instinct."

Prof. Felix Adler, in discussing the ethics of reward for good behavior, says: "What we should try to banish is the vicious idea of extraneous reward—the notion that man is an animal whose object in life is to eat and drink, to possess gold and fine garments, and to gratify every lower desire, and that he can be brought to labor only on condition that he may obtain such pleasures. We should be taught to find compensating satisfaction in labor itself." This is clearly an ethical view, and it is also eminently scientific. We must begin early to inculcate the pleasure of work as such. In the kindergarten movement an effort is being made to unite play and instruction, and, in the manual training work, to unite creative processes with instruction.

We have now reached that division of our subject which relates to punishment of children. This is the most controversial part of my program, for everybody has his own views on punishment. But if my remarks on the handling of the rod appear too dogmatic and unorthodox I have on my side some of the greatest educators of the world. In this country Prof. Felix Adler has given us in a series of brilliant lectures the most illuminating and liberal views on child discipline. In the preparation of the following remarks on punishment I have freely drawn upon his celebrated lecture on this subject.

1. Punishment should not be administered when one is angry, because anger deprives one of reason and judgment and of the ability to mete out the punishment adequate to the wrong committed. Everybody knows how an insignificant annoyance can put one into a furious rage when one's mood is attuned thereto, while a real wrong may at another time produce a feeling of sympathy for the wrongdoer. No one can trust himself when in a state of anger. It is related of an ancient philosopher who, when he discovered that his friend whom he trusted implicitly had ignominiously wronged him, cried out: "If I were not so angry I should do violence to you."

2. Never identify the child with its fault. The fault should be considered as something accidental and not as part of the child. Instead of saying, "You are a liar!" when a falsehood is told, the better plan is to say something like this: "You have told a falsehood; you will surely not do so again; hereafter you will tell the truth." Remember that the child lives for a long time in wonderland; fabrication may be due to a

too lively imagination. If this be the case, the remedy is to insist upon a rigid adherence to facts and the avoidance of anything that may overstimulate the child's fantasy. How often is a child told that "he is good for nothing," "stupid," an "idiot," ready for the "reform school," when the parent least suspects that he is thereby suggesting to the child the road he will travel. The transgressor should be inspired with confidence, should be lifted up instead of pushed down. The child should be given to understand that in spite of repeated failure there is hope for amendment. The slightest improvement should be utilized as a lever to accomplish more, by clearly demonstrating to the child that it is progressing in the right direction. Not only in blaming and criticising, but also in distributing praise, must we be guarded in our expressions. It is certainly bad policy to use the words "excellent," "perfect," "first-class." None of us is perfect, for if we were we should not need to strive for greater excellence. You tell the child that he is perfect and what need is there for him to go on improving? Unwise praise has the added effect of making the child conceited. Rather tell him that he has done well and that if he continues as he has begun he will do better still.

3. Do not lecture children. Let your measures speak for themselves. Long lectures accomplish nothing; they usually "pass in at one ear and out at the other." Reprimands should be clear, short and definite. The child is quick to learn his parents' characteristics; he knows a vacillating parent from one who is consistent. Do not threaten without a firm determination to carry out your threat. One should be careful of what he says, but once the command has been uttered we must insist upon implicit obedience.

4. Do not administer corporal punishment; in doing so you put the child on the level of the brute. Under certain conditions we are justified in using the whip on a lazy beast of burden, but hardly ever upon a child. Corporal chastisement brutalizes the child; and its frequent repetition extinguishes the sense of shame and degrades character. It breaks the spirit of the child and makes either a coward who will fawn and beg off—or, what is still worse, it hardens the child against punishment—a circumstance often noted in the habitual or hardened criminal for whom punishment has lost its terrors.

My theme would be but imperfectly treated were I to omit a discussion of what is proper literature for the young and what instructions should be given in sexual matters. It is difficult to define what literature may be considered fit for the immature, but, speaking generally, I believe history, biography, essays on conduct and the classics to be devoid of danger. The Bible should be permitted in parts, leaving out the portions unsuitable for children. Novels of any kind, especially the prurient novel, should be banished from the child's literary diet. They do great damage to the young, immature brain, making it unfit for serious study, and initiate it into a knowledge of sexual matters of the most *blasé* type. No child should be permitted to read the daily newspaper, because it encourages a desultory habit of reading, thereby engendering an impatience for reading matter which requires concentration. Most of us read the daily newspaper and forget its contents as soon as finished.

Some of us, therefore, only read the headlines, and still others are content to look at the pictures. It were far better if we still had the old-fashioned weekly, which has unfortunately become extinct. As for the moral worth of the newspapers—what do they report? The most sensational crimes—infidelity and sexual aberration, divorce proceedings, circumstantial accounts of the most horrible happenings, executions, hold-ups, and forgeries. There is a type of newspaper called “yellow journal” which the other so-called decent papers constantly criticise. In my opinion the “yellow” press is not half as dangerous as our so-called “respectable” papers which depict in language perhaps better chosen—but still unmistakable—the orgies of the demi-monde and the crimes of the upper and under worlds. The daily newspaper is often unwittingly an instructor in crime and immorality and no school-child should be permitted to study its pages of obscenity.

I have now reached the last and most delicate portion in our discussion—namely, the instruction of the young in matters sexual. I am not sure that I am competent to solve this mooted problem satisfactorily. But as a physician with experience I have learned that almost all children, male and female, get their first sexual knowledge from their companions instead of their parents and educators. This is wrong in theory and practice. First, because the information can not be appropriately given by one child to another; secondly, because with it usually goes a knowledge of the practice of vices which undermine their physical and moral statures. The shock of the discovery by a girl of the first manifestations of womanhood has not seldom given rise to a series of nervous attacks, which may have been prevented if the mother had instructed her ignorant child in the rudiments of sexual hygiene. Occasionally a girl, uninstructed in regard to her nature and groping in the dark, will make unnecessary investigations, which may land her upon the rock of vice. To what an alarming extent sexual error exists among our boys only those know who are constantly brought face to face with its disastrous consequences. The subject of sex is distasteful and carefully avoided in good society, but this reminds one of the old proverb which says, “that in the hangman’s house no one speaks of the rope.” Perhaps this is why people whose conscience is guilty in regard to sexual matters avoid any references to the sexual life with the scrupulous anxiety of criminals caught in the act. “How to best impart a knowledge of proper sexual hygiene to the innocent” has recently become a favorite theme for discussion among the best educators of the land. It is generally believed that the subject can be appropriately taught by a reference to Nature. Sex methods can be illustrated throughout living Nature by a gradual approach from the lowest forms to the highest so as to give least offense to our usual ideas of propriety. The study of biology removes all mystery from the subject and satisfies our half-grown inquisitive children and, at the same time, affords an opportunity for explanations of a practical character. This may be done by the teacher or the educated mother. I am of the opinion that the father should warn the boys against sexual abuse, while the mother should possess enough tact to teach her daughters. The question as to the best time to undertake this task will depend on

circumstances. There is less danger in too early instruction than in being too late. The greatest stress must be placed upon the immoralities and upon the dangers to body and mind.

I often wonder whether woman has not neglected the most noble vocation in her life—the rearing of the best possible generation. Woman has proven her equality to man in all the learned professions; the profession of maternity, in which Nature has made her man's superior, she has wilfully neglected. Is there a nobler work imaginable than that of rearing a strong moral and intellectual race of men and women? But, alas, in too many instances our modern women permit peasant girls—or, at least, women of the inferior class—to rear their children, to instill into their young minds the most fanatical superstitions and, perhaps, to corrupt their little bodies. If we wish to bring up the proper kind of posterity we must take a hand in the business ourselves.

To accomplish this satisfactorily woman must acquire some knowledge of the groundwork of biology and some acquaintance with the natural history of animal forms. The time spent in these studies and their practical application to human wants will ultimately result in great good to future generations.

100 State Street.

TYPHOID FEVER FROM A MUNICIPAL STANDPOINT*

HEMAN SPALDING, M.D., CHICAGO.

From a municipal standpoint typhoid fever is a preventable disease. Lord Palmerson long ago said that for every death from typhoid fever some one should be hung. This extreme view of England's prime minister was not taken without a full knowledge of the manner in which typhoid fever infection is conveyed from one person to another. But the theoretical man in his study fails to see some of the difficulties that confront the practical sanitarian when in the field face to face with epidemic conditions.

Enough is known about typhoid fever and the manner of transmission of typhoid infection to practically blot it out if the municipal health officer could be clothed with arbitrary power and have sufficient means available to enforce rules and regulations known to be necessary to accomplish such a result. But as practical sanitarians we must meet the conditions as we find them and use to the best advantage the means with which we are provided. I will briefly mention some of the general duties of the sanitarian. The municipal sanitarian must see that the inhabitants have an abundant water supply free from contamination. He must see that the sewage is disposed of without danger to any one. He must provide for the disposal of garbage and household refuse in a sanitary manner. Milk and other food supplies must be under his control and supervision to such an extent as to enable him to stop the sale or distribution of any food contaminated by typhoid infection or coming from places where typhoid fever is known to exist. He must see that houses, privies, yard vaults and premises are made and kept sanitary. He should fight for a pure atmosphere, and I believe that under present conditions we should do what we can to substitute motor cars for horses. Three-fourths of the dirt and litter in the streets and alleys of a city comes from the horse. The horse litter is the favorite breeding place for flies. Take the 80,000 horses out of Chicago, sprinkle kerosene in the garbage boxes,

* Read before the West Side Branch of the Chicago Medical Society, Oct. 22, 1908.

and the flies would have but few resorts. The dumping grounds for garbage as now conducted, the privy vault and the unscreened dirty household would be about all that stands between the fly and his extermination.

There is no time to go into details concerning these health measures which emanate from the municipal health officer nor to discuss what has or has not been done in Chicago. Much has been done in this city to protect health, and if it were not for the unfavorable conditions in the surrounding cities, towns and country, typhoid fever would be at the present time almost unknown in Chicago. Fifty per cent. of the cases of typhoid fever are direct importations from places outside of Chicago where the disease is known to exist. All the cities at the southern end of Lake Michigan are putting their sewage into the lake, and from this polluted water securing their drinking water through intakes near the shore. Typhoid fever is constantly present in these near-by cities and a considerable number of persons living in Chicago work in these places. A large number of the remaining 50 per cent. is known to be caused by infected milk brought into the city from farms where typhoid fever has been found to exist.

An instance where typhoid fever was brought into the city in milk was found in the Stock Yards district. A considerable number of cases of typhoid fever were found to exist in the homes of families who were supplied with milk from one source, and the milk dealer himself had a case of typhoid fever in his family. The Department of Health stopped the sale of milk by this man and sent inspectors into the country to investigate the farms from which this milk dealer procured his milk. At one of the farms was found a bad sanitary condition. Three cases of typhoid fever had, one after another, existed there for a period of three months. The bowel and bladder discharges of these patients were thrown out on the ground which sloped towards two shallow wells, one eleven and the other thirteen feet deep. The milk cans were washed in water from these wells. No more milk was allowed to be shipped to Chicago from this farm, and the typhoid fever subsided promptly in the area where this milk had been sold.

Another notable instance occurred in West Pullman. An outbreak of typhoid fever occurring almost exclusively in the families supplied by one milk dealer. This dealer was promptly asked to give a list of the farms from which he was procuring milk. A visit to all the farms in the list furnished by the milk dealer resulted in discovering no source of the infection. A week later a sudden increase in the number of cases, all in families supplied by this dealer, caused the Department of Health to close the man's business and investigate still further. At this stage of the trouble the milk dealer gave the name of another farm in Lake county, Indiana, which he had withheld because he knew there was a case of typhoid fever at that farm, as it afterwards proved. A visit to the farm revealed the presence of a case of typhoid fever just recovered, and it was learned that the Chicago dealer had been to the farm and had seen the case and knew all the time that he was selling the milk from a typhoid infected source. The state of Indiana promptly fined the farmer for his part in the murderous trade. The Chicago dealer is not yet through with his reckoning.

With the above conditions present—and most large cities are menaced in a similar way—the complete elimination of typhoid fever is a difficult problem. The earth is a great sponge, absorbing the excrements of over a billion, six hundred million human beings. These excrements find their way into almost every water supply at some time. In many instances they are carried considerable distances to contaminate water supplies. It is known that the bacillus of typhoid will exist two months in moist soil, twenty-five days in dust, twenty-three days in a fly's intestines. Sunlight does not kill typhoid bacilli. Thirty per cent. of the germs will survive one week in water, 10 per cent. will survive two weeks in water, 3 per cent. will survive three weeks in water, and 1 per cent. will survive six weeks in water. It is not known how long a few virulent germs may survive in water and the few will become millions if they reach the milk supply. With the germs ever present somewhere and millions of ignorant people over whose actions we can have but partial control, it is, under present conditions, impossible to completely eradicate typhoid fever, notwithstanding the fact that

we have knowledge sufficient, if applied, to sweep the disease from the face of the earth. The practical important preliminary for the municipal health officer is to have a knowledge of every case in the city. To this end, doctors should promptly report every case of which they have knowledge. Each case is a center of infection from which it is possible for others to contract the disease. The health officer has no concern about the treatment, but has much concern about the management of the case. He has a public duty to perform. It is his duty to learn the source of infection, to prevent others from contracting the disease from the same source and to prevent further extension of the disease from the reported case. He must visit every case of which he has knowledge and inquire into the food supply. The inquiry is for the purpose of learning how or through what medium the excrements from a typhoid fever patient got into this new victim's mouth. In general the greatest number receive the infection through the water supply—71 per cent. The milk supply is next in frequency—17 per cent. Milk, though, is frequently contaminated by water, by adding infected water or washing milk containers in contaminated water. Other sources of contamination of milk are dirty hands, infected dust and flies. Cheese, butter, ice cream, shell fish, oysters, air-borne dust and clothing, handkerchiefs, sheets and even body clothing are some of the less frequent sources of the disease. The soil—that is, susceptible persons—is always present. The seed, the typhoid bacilli, is always present somewhere and the sower of the seed is always present somewhere. The latter may be a well person carrying the seeds of typhoid. Again, the source of the disease may be the latest case going about with typhoid germs chronically present in the bowel discharges or it may be a convalescent typhoid patient.

New York has a case, reported in *The Journal of the American Medical Association* about a year ago, which successively communicated typhoid fever to six families where she had been employed as a domestic. This woman is still under restraint in New York after a period of 450 days. We have a similar case in Chicago now under restraint in a hospital. This girl had typhoid fever last spring. Six months later she went to work in a doctor's family, and soon after a member of the doctor's family came down with typhoid fever. An exhaustive study of the case revealed no source of the infection, except from the girl, in whose excrements the typhoid germ was found in abundance. Now, as to the management of the case in the house: In most instances we find the family physician gives proper instructions to the family or nurse for disinfecting or destroying the excretions emanating from a typhoid patient, but some do not, and it then becomes necessary for the health officer to instruct the family how to protect the public health. The house should be screened against flies, especially keep flies out of the kitchen, dining room and away from the milk and other foods. In poor families, where there is inadequate house room and no nurse, I would advise the family to drink or eat nothing that has not been boiled or cooked. Perhaps it is safer for all to follow this rule when typhoid fever is present in the house, no matter how well the sick room is guarded. Visitors should be kept out of the patient's room, even when the patient is in a convalescent stage, for all who come in contact with a typhoid fever patient are in some danger. If a visitor is admitted he should touch nothing in the room. Typhoid fever is a systemic disease and the germ is found in the blood, the bowel and bladder discharges, the vomit, sputum, saliva, and nose discharges, and on the skin. The patient's hands may convey the germs to others in shaking hands, which may be conveyed to the mouth. Every excretion from the patient must be disinfected. Even the bath water in which the hands, face or body of the patient has been washed, must be disinfected before being disposed of. Everything that is taken from the room must be disinfected, dishes, knives, forks, blankets, sheets, etc., as in cases of diphtheria. The hands of the nurse should be washed and disinfected every time she touches the patient. The best disinfectant for typhoid fever is sulphate of copper (blue vitriol). It is odorless and cheap, costing at retail but ten cents a pound. Two pounds dissolved in five gallons of water and kept covered in a stone jar should be provided at the beginning of every case of typhoid fever. Keep a pint of this solution in a vessel for receiving the bowel

and bladder discharges. Stir the discharges to break up the hardened masses and let stand for half an hour before emptying. Immerse all bedding, such as sheets, pillow slips, handkerchiefs and other things taken from the room in this solution or in a 5 per cent. solution of carbolic acid and water. Keep the cuspidor, if used, supplied with the same solution. The water closet should always be disinfected when used by the patient. Typhoid fever is a filth disease. Ignorance and filthy habits perpetuate the disease. Handle a case with surgical cleanliness and the disease will not be conveyed to others.

IMMUNITY.

A REVIEW OF OUR KNOWLEDGE CONCERNING OPSONINS, AGGRESSINS, ANAPHYLAXIS, PHAGOCYTOSIS AND IMMUNITY.*

WILLIAM C. BOUTON, A.B., M.D.

Secretary of Lake County Tuberculosis Institute; Ex-President Lake County Medical Society.

WAUKEGAN, ILL.

In my previous paper on the subject of bacterial attack and cell and serum defense I considered toxins, antitoxins, agglutinins, precipitins, cytotoxins or cytolytins and bacteriolysins. In this paper I shall endeavor to present clearly, but as concisely as possible without sacrificing clearness, the important subjects of opsonins, aggressins, anaphylaxis, phagocytosis and immunity. The term opsonin is derived from the Latin verb *opsono*, meaning "I cater for," and the reason for the use of this term is the following: Certain observers, viz., Douglas and Sir A. E. Wright, employing Leishman's method of observing phagocytosis of bacteria by leucocytes outside the body and under the microscope, discovered that under ordinary conditions the polymorphonuclear leucocytes do not freely take up and digest bacteria, unless certain thermostabile substances be present in the blood serum, which, therefore, on account of their auxiliary action, they named opsonins, and to the presence or relative absence of these opsonins they attribute to a large extent either the eventual destruction of the bacteria by phagocytic activity or, on the other hand, the continued multiplication of the bacteria within the body. They found, for example, that the leucocytes from a patient suffering with chronic furunculosis or other pyococcic or streptococcic disease are able to take up abundant cocci if removed from the patient's blood serum by centrifugation and placed in the serum of a normal, healthy person. In fifteen minutes at 37° C. such leucocytes may each have taken up from 15 to 30 cocci added to the suspension, whereas under the same conditions the leucocytes in the patient's own serum may have been almost inert, taking up practically no cocci. And, on the other hand, the leucocytes from a healthy person, placed in the blood serum of the patient, may also show scarcely any phagocytic action. This phagocytic activity is therefore not merely a matter of leucocytic activity, but is favored and

* Read before the Waukegan Clinical Society, May, 1909.

stimulated by the action of some substance in the blood serum, and this substance is known as opsonin. Neufeld has also described what is evidently the same substance under the name cytotropic substance. He found that the serum of animals, immunized against streptococci, pneumococci and erythrocytes, contains substances which act upon the bacteria or foreign blood cells in such a way as to favor their ingestion by leucocytes. He found also, as Wright did with the opsonins, that these substances were thermostabile—i. e., they could be heated to 59 C. for half an hour without being destroyed—and that they became fixed by the bacteria but not by the leucocytes.

It would be interesting and instructive, but would require altogether too much time, to give some account of Wright's observations and experiments, but I will give only a few of the important conclusions..

1. In a large number of infections there exist in the blood serum certain protective substances known as opsonins.

2. The opsonins act upon the bacteria so that the latter can subsequently be ingested by the leucocytes.

3. When different bloods are compared the variable factor is the serum and not the leucocytes. This does not mean that the leucocytes of different persons do not vary in their phagocytic activity, but that, as a rule, the variations in the activity of the leucocytes are so slight, compared with the range of variation of the opsonic power of the blood sera, that they may practically be neglected. When leucocytes are suspended in normal saline solution, serum and opsonins being entirely absent, they will ingest bacteria to a slight extent and very slowly indeed, while in normal serum at body temperature normal polymorphonuclear leucocytes will within fifteen minutes take up abundant bacteria. Not simply an occasional coccus, but from 30 to 50 may be counted within a single leucocyte.

4. The specific opsonin is used up when bacteria are added to a serum, so that on removing the bacteria and adding this serum to a second portion of the same bacterial emulsion it is inactive—there is no more phagocytosis.

5. The opsonins become combined, or at least absorbed, by the bacteria, so that if these bacteria are then removed and placed in another serum which has been rendered inactive it again becomes active and, if it contains leucocytes or these are added to it, they freely ingest the bacteria.

6. This combination of opsonins with the bacteria is probably a firm chemical union since long heating at 60° C. will not destroy the opsonic action.

7. Normal serum contains normal opsonin, but after vaccination with the cultures of different bacteria there are developed specific opsonins.

8. By careful vaccination with measured small quantities of dead cultures of various pathogenic bacteria, including the pyococcus aureus.

gonococcus, bacillus coli and tubercle bacillus, it is possible to increase markedly the opsonizing power of the person's serum.

9. Regarding phagocytosis as the main process by which bacteria are destroyed within the body and the opsonins as the means by which the bacteria are prepared for ingestion by the leucocytes, Sir Wright has decided that the relative amount of opsonins in a given serum gives an indication of the defensive powers of the individual against bacterial attack; for this purpose he has established what is known as the "opsonic index." This means the ratio between the average number of bacteria found within 20 to 40 polymorphonuclear leucocytes of an emulsion made with the patient's serum and the number of bacteria found in the same number of like leucocytes in an emulsion made with normal serum, the latter being taken as 1, or unity. For greater certainty a so-called "pooled normal serum" may be employed—i. e., a combination of the sera of five or more apparently normal persons. In most infections the opsonic index is found to be below 1. With carefully measured subcutaneous injections of dead specific bacteria there results a rise of the opsonic index and this rise corresponds to an obvious improvement in the general condition of the patient and the local manifestations of the disease. By carefully watching the index it is possible by successive vaccinations to bring up the index in successive steps until it reaches and exceeds the normal, and coincidentally in these diseases a very material improvement is to be recognized, if not complete arrest of the morbid process. This is particularly the case with conditions due to the pyococcus aureus. Good results are also obtainable in certain cases of gonorrhea, colon bacillus infections and some other diseases, including tuberculosis, although in the latter disease it can not be said that the opsonic index affords clear indications. The want of certainty in the readings has indeed made many observers very skeptical regarding the full carrying out of Sir Wright's technic; but, while it has to be admitted that all do not react similarly to successive vaccinations and that even in his own practice Wright encounters not a few obstinate cases which do not react satisfactorily to his vaccinations, yet, on the other hand, in certain infections, especially of a chronic or subchronic type, there are such remarkable cures that it is impossible not to see that the method, if not complete, has in it a material advance upon any previous attempts at treatment by vaccination and elevation of the defensive powers of the body during the course of a disease.

It would be quite interesting but would require far too much time to consider the results of vaccination and the use of the opsonic index in pus infections, gonorrhea, pneumonia, diphtheria, scarlet fever, typhoid, tuberculosis, etc., but I will try to say a few words along these lines before closing the paper.

I will next consider the subject of aggressins, which, as the name indicates, are substances present in bacteria which increase their aggressiveness or virulence. They are responsible for the phenomena which are

observed and described as "exaltation of virulence," produced by the passage of bacteria through a succession of animals of one species. Now the virulence of bacteria is not simply due to the production of toxins alone. As we already know, toxins are divided into exotoxins, which are excreted and set free by bacteria and endotoxins, which are contained within and are inseparable from the bacteria. The cholera spirillum, anthrax bacillus and some other pathogenic germs produce endotoxins almost exclusively and we have not the slightest evidence that when these bacteria become more virulent the production of exotoxins is at all increased, for the filtered culture fluid from a 24 hour culture of the most virulent strain produces no more symptoms than does that from the most attenuated strain. Nevertheless, if the attenuated bacteria are injected into an animal or fluid containing normal leucocytes, phagocytosis begins at once, while, if the virulent bacteria are injected, there is no phagocytosis. In other words, it seems quite evident that the living virulent bacteria excrete or discharge substances, which are not properly toxins but which, nevertheless, have an inhibitive or "anti" action upon the cells or leucocytes—substances which are not necessarily taken up by the body cells or leucocytes and destroyed, but which either neutralize the action of the opsonins or directly repel the leucocytes, this repulsion being greater than the attraction exerted by the other bacterial substances. It is these substances, which either neutralize the action of the opsonins or repel the leucocytes, which are called aggressins.

Other experiments have proven that the greater the resistance of the body to the bacteria, the more active is the production of these aggressins. They are produced in greater quantities during the struggle between the bacteria and the body cells or leucocytes, while comparatively few are produced in a plate or test-tube culture. Bail regards these aggressins as new undescribed substances, while others regard them as free bacterial receptors or haptophores (such as those described in Ehrlich's side-chain theory), and these latter observers believe that these free or discharged receptors combine with the amboceptors, described in my previous paper, producing, as it were, a diversion of the amboceptor, so that the bacteria themselves are not attacked and so continue to proliferate. Granting, however, that this view is correct, yet it is evident that these receptors are neither endotoxins or exotoxins, for the fluid containing them is free from toxic action. If these substances are to be regarded as receptors they have no toxophores, but only haptophores. The existence of aggressins most likely explains certain observations, viz., that exudates produced by the local growth of a particular pathogenic germ contain no opsonins. Perhaps it may be more correct to say that under these conditions there is not really an absence of opsonins but a neutralization of them by the bacterial aggressins. Probably the aggressins bear much the same relation to the bacteria as the opsonins do to the leucocytes, and whether the course of an infectious disease ends in recovery or death is doubtless very largely, if not altogether,

dependent upon whether the opsonins or the aggressins win out in this struggle between the leucocytes and the bacteria.

I shall next consider the very interesting and important phenomena known as anaphylaxis. From the early days of the employment of diphtheritic antitoxin occasional cases have been reported of sudden death following the injection of the serum. In 1906 Anderson and Rosenau were able to collect records of 19 such cases. The symptoms in such cases might appear within five minutes after the injection in the form of collapse, unconsciousness or convulsions. Mild cases, with urticarial rashes and sometimes nausea, are comparatively common. It has been clearly proven that such symptoms are not due to the toxin or antitoxin, but to the serum itself, as normal horse serum produces identical effects. Fatal effects have also followed the transfusion of the blood of sheep or other animals into man in cases of grave anemia. Such transfusion led to after effects so severe—high fever, hemorrhages and intravascular clotting—and was so often fatal, that the practice was soon abandoned. Some cases were much milder, simply showing fever and urticaria. Experimental observation upon these phenomena have led to some remarkable results. If a moderately large dose of a foreign serum be injected into an animal, either subcutaneously or into the peritoneum, no immediate effects are produced and the animal in a few days becomes immunized to that serum. But if, instead of a moderately large dose at first, a guinea-pig be given as little as 1/100,000 of a cubic centimeter of a foreign blood serum and then, after twelve days, a second injection of 5 c.c. be given, the guinea-pig is very apt to die, perhaps within a few minutes or, at most, within a few hours. Instead of being rendered immune, the opposite result has been brought about—viz., the animal has been “sensitized”—i. e., rendered far more susceptible to the foreign serum. This process of so-called “sensitization” has received the name of anaphylaxis. It has been found also that in herbivorous animals the same results may be gained by feeding with the foreign serum. Some investigators have shown that the subjects of anaphylaxis exhibit hemorrhages in the stomach, cecum, lungs, spleen, heart and adrenals; these appear to be associated with a fatty degeneration of the capillary endothelium. Moreover, the blood of the sensitized animals comes to contain a substance which, when the blood is injected into other guinea-pigs, sensitizes them also. In man and omnivorous animals a single dose sometimes has the same effect that the two doses possess in rabbits and guinea-pigs.

Various theories have been proposed to explain the peculiar phenomena of anaphylaxis, but the most satisfactory one is based upon Vaughan's remarkable studies upon bacterial and other proteins. It would require altogether too much time to go into these in detail, but the main points are that the bacterial proteins may be split up into two portions—one poisonous and the other non-poisonous—and that this is true of even the apparently most harmless of proteins, egg-albumen.

This, when extracted by 2 per cent. sodium hydroxid in absolute alcohol, is as quickly fatal to guinea-pigs as the toxin obtained from the proteins of the colon or typhoid bacillus. This poison acts chiefly upon the brain, more especially upon the respiratory center, causing fatal disturbance. Reasons are given why this splitting up of the protein into its poisonous and non-poisonous portions occurs most often when a minute preliminary dose is given and rather rarely when the preliminary dose is comparatively large. Adami believes that this very closely resembles the breaking up of a minute quantity of salt into its elements, sodium and chlorin, when it is dissolved in a large amount of water, while this occurs very slightly when a comparatively large amount of salt is dissolved. The small amount of poison in the preliminary dose does no appreciable harm, but Adami believes that the body cells then form the habit of attracting to themselves the non-poisonous portion of the protein, thus setting free the poisonous part to act upon the brain centers, and when the second, much larger, dose is given in 10 to 12 days after the first dose, so much poison is set free to attack the vital centers as to quickly produce a fatal result. This entrance of the poisonous part into the general circulation may, however, happen very quickly in transfusion experiments or in preliminary large doses of protein, and in this way we can explain the fatal effects of serum injections. Usually, however, where a large preliminary dose is given, the body becomes immunized to the whole protein.

Let us now consider for a few moments the important quality of phagocytosis possessed especially by the polymorphonuclear leucocytes. This property of actively taking up foreign particles, organic and inorganic, is primarily nutritional—a means whereby the individual cell gains food material. Such particles of matter, when so taken up by the cell, if unfit for assimilation are discharged, but if capable of affording nourishment they stimulate the formation of a digestive vacuole around them, in which vacuoles we have indications of the presence of digestive ferments, and, lying thus in the fluid, the foreign matter is seen microscopically to undergo solution until all that remains are a few granules of unassimilable debris which are eventually cast out. Among such foreign bodies, which these phagocytic cells are able to take up, are the various bacteria, animal and vegetable. These germs, as Metchnikoff has abundantly proven, may be taken up in the living condition and then, whether in the unicellular organism like the ameba or in the leucocytes, there is the same formation of digestive vacuoles and destruction of the bacteria by digestive processes. The coccus or bacillus within this digestive vacuole swells, becomes colorless and then dissolves. When a small platinum loopful of a suspension of pathogenic germs—for example, the pyococcus aureus—is added to a mixture of serum and leucocytes and kept in the incubator at 37° C. for fifteen minutes and a drop of the mixture be then examined, the number of bacteria seen within the leucocytes and undergoing digestion is very remarkable. There can be

no question about the importance of phagocytosis in the destruction of bacteria that gain entrance into the system, but there is considerable doubt whether this is the supreme method of destruction of germs and what its relation may be to the development of continued immunity.

It would require far too much time to even mention the various views and theories held by different investigators, but I will simply say a few words about the theory of Ehrlich's chief opponent, Metchnikoff, who believes that phagocytosis is practically the entire process but recognizes two broad groups of phagocytes, each having the power of acting more particularly upon one set of substances. He names these two groups the microphages, comprising polymorphonuclear leucocytes, eosinophiles, etc., and macrophages, including hyaline leucocytes, endothelial cells and fixed phagocytes, and believes that the former class is particularly active in opposing the bacteria of acute diseases, while the latter class is most efficient in defending from the bacteria of chronic diseases. He also does not at all agree with Ehrlich's theory of multiple complements, amboceptors, etc., but recognizes only two, which he calls microcystase and macrocystase, developed respectively by the microphages and macrophages. He also believes that the immune bodies are derived from the leucocytes. Without saying more about these opposing views, I will simply give Adami's conclusions, in which he tries to harmonize to some extent the conflicting theories of these two great investigators:

1. Phagocytosis proper (i. e., the ingestion and digestion of bacteria) is a great factor in the destruction of microbes entering the system.

2. By accustomance and adaptation to the products of bacterial growth and to other toxins, both on the part of the leucocytes and other potential phagocytes in a local area of infection and of the mother cells of those leucocytes in the bone marrow and elsewhere, the phagocytic capacity may be markedly increased and in this way a continued immunity be materially aided.

3. The cells which Metchnikoff regards as phagocytes and potential phagocytes, while they are those most commonly invoked to neutralize bacteria and bacterial and other toxins, are not the only cells of the organism possessing these powers.

4. With the exception of the red corpuscles (which are not cells proper), the rule would appear to be that those cells which take up microbes and microbial and other toxins are the cells which provide the antibodies.

5. Antibodies, whether present in the normal organism or developed in response to the introduction of particulate or dissolved toxins, are the products of cell activity and their presence in the blood is a secondary process, either a true secretion (in this resembling glandular secretion proper) or to some extent, where there is cell destruction, the result of that cytolysis and of the freeing of substances previously bound in the cells.

6. Produced within the cells, these antibodies can act within the cell and then bring about a condition indistinguishable from ordinary intracellular digestion, though their strikingly specific powers suggest thus that intracellular digestion, instead of being a simple single process, is one that varies to an almost infinite extent, according to the nature of the substance entering the cell.

7. They can act also outside the cell and in this case clearly neutralize the toxin by entering into combination with it.

8. Whether, therefore, we regard and study the immunity as occurring within the cell or apart from it, eventually we arrive at a common underlying chemical and physical ground work, for, although differences exist in respect to details, fundamentally the phagocytosis and the side-chain theories are not contradictory; they merely view the one set of phenomena from different aspects.

In my previous paper I described Ehrlich's side-chain theory of the formation of antitoxins and their protective action and transfer of immunity to other organisms when injected before or during the course of disease. Let us now consider his side-chain theory expanded, so as to include not only the production of antitoxins but of agglutinins, precipitins, opsonins, cytolytins, bacteriolysins and the rest of the so-called antibodies, and first it may be of interest and profit to name the various enzymes, toxins, venoms, etc., and the respective antibodies which they stimulate the cells of the organism to produce. I will name in order first the enzyme or toxin and then the antibody which it stimulates the organism to produce.

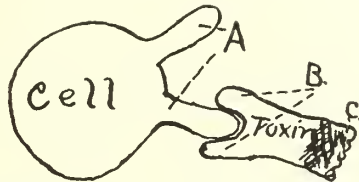
- | | |
|---|-----------------|
| 1. Enzymes | Antienzymes |
| 2. Phytotoxins | Antiphytotoxins |
| 3. Bacterial exotoxins | Antitoxins |
| 4. Proteins (animal or vegetable) | Precipitins |
| 5. Bacterial proteins | Agglutinins |
| 6. Bacterial aggressins | Opsonins |
| 7. Animal venoms (simple) | Antivenins |
| 8. Animal venoms, complex, requiring intermediation
of complement to act | Antihemolysins |
| 9. Foreign complements | Anticomplements |
| 10. Foreign amboceptors | Antiamboceptors |

All these act without intermediate aid, but the following require the interaction of a specific amboceptor and a non-specific complement:

- | | |
|--|----------------|
| 11. Vegetable cells (bacterial) | Bacteriolysins |
| 12. Animal cells of various orders stimulate to production of cyto-
lytins, hemolysins, leukotoxins, hepatotoxins, nephrotoxins, spermatox-
ins and toxins in fact from most, if not all, of the glandular organs. | |

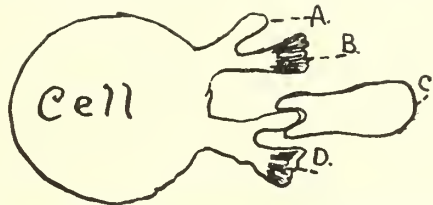
In order to explain the formation of these different antibodies Ehrlich divides the receptors or side-chains, which are identical terms as applied to the cell, into three orders or classes.

1. The first class is composed of side-chains, possessing simply a haptophore, to which the toxin becomes attached or anchored by its haptophore. These side-chains unite then only with the relatively simple toxins and ferments and set free antitoxins and antienzymes.



A. Haptophore, receptor or side-chain of cell; B. Haptophore of toxin or ferment; C. Toxophore of toxin or ferment.

2. The second class of side-chains is more complex in order to unite with compound protein molecules and set free precipitins and agglutinins, with aggressins to set free the opsonins and with simple and complex animal venoms to set free antivenins, antihemolysins, etc. Here



A. Haptophore of side-chain; B. Zymophore of side-chain; C. Compound protein molecule, aggressin or animal venom, simple or complex; D. Zymophore.

there is not only an anchoring action by the side chain, but also a fermenting and dissociating action, the side-chain possessing both a haptophore for anchoring and a zymophore for dissociation of the protein or venom.



A. Haptophore for anchoring animal or bacterial cell; B. Haptophore for anchoring complement; C. Animal or bacterial cell; D. Haptophore of complement; E. Complement; F. Zymophore of complement.

3. The third class of side-chains, in order to unite with the still more complex substance of animal and bacterial cells, must anchor not only the cell molecule, but also the complement, and the complement

possesses not only a haptophore but a zymophore. Here the union of side-chains with bacterial or animal cell and complement is shown.

When these receptors or side-chains are produced in excess and discharged they are called haptines by Ehrlich. They possess the same properties of attachment as they do when existing as fixed side-chains of the protoplasmic cell and, corresponding with the three orders of fixed side-chains, Ehrlich recognizes three orders of free side-chains or haptines, the first order including antitoxins and antienzymes, the second order including agglutinins, precipitins, opsonins, etc., and the third order, known also as amboceptors, including the bacteriolysins, cytolytins, nephrotoxins, etc. The various free receptors which stimulate the cell to form antibodies are often called antigens.

A great deal more might be said on this subject, and also on the relation of toxins to enzymes, but I will give only two or three of Adami's conclusions and his modification of Ehrlich's side-chain theory of immunity very briefly. He says that if toxins are bodies of the same order as enzymes or ferments—and he believes they are—it follows that the antitoxic side-chains, developed in reaction to the presence of toxins, are not identical with those dissociated by the toxins, whose dissociation leads to the symptoms of disease. Or, in other words, something in addition to the mere proliferation and excessive reproduction of the side-chains attacked by the toxin molecules, is necessary in order to explain immunity. Adami believes that the toxin molecule does not simply become attached to the biophoric or protoplasmic molecule by one of its side-chains, but that it detaches the side-chain and then delivers or hands over this detached side-chain to a recipient which has a greater affinity for it and then the toxin molecule is free to act upon and detach another side-chain and this process is indefinitely repeated. He believes also that it is this detached side-chain, plus the recipient with which it has united, that forms the antitoxin or the agglutinin, precipitin, opsonin, bacteriolysin or cytolytin, as the case may be, according to the nature of the attacking toxin and the order of side-chain detached by it. He believes further that the detached side-chain, while still contained within the cell protoplasm, has no protective action and so confers no immunity, the toxin having greater affinity for the still adherent similar side-chains of the protoplasmic molecules, but when the excess of such side-chains, plus the recipients to which they become attached, is discharged into the blood stream, then any circulating toxins, not being drawn by the greater attraction of the adherent side-chains of the cells which they specifically influence, join with these antitoxins—i. e., free side chains plus recipients—and become neutralized by them, and so are not attracted to and taken up by the cells. So much for this important and interesting but rather difficult subject of a satisfactory theory of immunity.

Just a few words in conclusion on the specific opsonins and the value of the opsonic index according to different observers. Varney believes

that in bacterial inoculations we possess a therapeutic agent with a specificity of great merit and that Wright's method of obtaining the resisting power of a patient is of unquestionable value as a guide to determine what will raise the resistance. He believes further that proper autogenous vaccinations, administered in appropriate doses, when the patient's opsonic index indicates the necessity for revaccination, is a harmless, quick and efficient treatment in certain chronic localized infections yet to be classified. Bolduan states that there is considerable variation in the opsonic power of serum from a number of apparently normal individuals and that duplicate and triplicate tests, made with the same serum at the same time and under apparently identical conditions, often yield widely divergent results. He finds also that clinical results with bacterial inoculations do not always parallel the opsonic indices and that patients sometimes do well with decreased opsonic index and vice versa. Da Costa believes that the opsonic index is very useful in the diagnosis of early tuberculosis, the index to the tubercle bacillus being very low or very high, the former suggesting predisposition, the latter showing infection against which the resisting powers are raised in defense. Contrary to Wright and others, Tunnicliff shows that the diphtheria bacillus is sensitive to the opsonic action of human and rabbit blood serum. It was found that in diphtheria the opsonic index for diphtheria bacilli is generally below normal at the onset of the disease. As the membrane disappears and the symptoms subside the index rises considerably, returning to normal in two to nine days. In the majority of cases there is a rise in the streptococco-opsonic index in diphtheria, but the indices for diphtheria bacilli and streptococci rarely correspond. The injection of dead diphtheria bacilli in suitable number into rabbits is followed by a marked rise in the index. The suggestion is made that the injection of dead diphtheria bacilli may prove of some service in ridding the throat of bacilli in the case of chronic carriers and convalescents, as the experiments show that in rabbits such injections are harmless and, at the same time, cause decided increase in the opsonic power of the blood on diphtheria bacilli. Many investigations have been made in pneumonia, giving the following conclusions:

Avirulent pneumococci absorb opsonin and become susceptible to phagocytosis; virulent pneumococci do not absorb opsonin and are insusceptible to phagocytosis, and these properties may be diminished or increased at will by passage through rabbits or cultivation on artificial media, as the case may be. From the evidence at hand it would seem that opsonification and phagocytosis play a secondary and not a primary rôle in combating the pneumococcus infection in pneumonia, because, as has been shown, virulent pneumococci must be previously altered before they will absorb opsonin and become phagocytatable.

Gabritchewski's vaccine has given reported good results in the prevention of scarlet fever. This vaccine is made from streptococci, isolated from the blood in the hearts of children dead of scarlet fever. It is a

condensed bouillon culture of streptococci, killed by heating to 60° C. and the addition of one-half per cent. carbolic acid solution. Usually 10 drops were injected hypodermatically and during an epidemic 185 persons were thus injected as a preventive measure, with the result that there was a general rash in 43, a local rash in 70 and no rash in 72, and only 2 of the 185 developed scarlet fever, the others remaining well except for the rash in 113 and some fever following the injection in all but one, this being quite marked in 66. More might be said regarding other diseases, but it would take too much time.

Hektoen summarizes as follows the considerations for the therapeutic inoculation of dead bacteria:

1. The power of the injected bacterial substances to stimulate the formation of opsonins and other specific antibodies.

2. The belief that increased formation of such substances may hasten healing of the corresponding infection.

3. The apparent inability of the body under certain conditions of natural infection to produce such substances in sufficient quantities without special stimulation. He gives as the essential prerequisites for therapeutic inoculation these three, viz.:

1. Correct etiologic diagnosis.

2. Sterilized pure cultures of the bacterium causing the infection in each disease or sterile products of such bacteria.

3. The injection of proper doses at proper intervals so as not to unnecessarily lower the antibacterial power or cause other unfavorable disturbances.

In the present state of our knowledge the fairest and wisest view of this subject is probably that given by Bevan in the general surgery of Lexer and himself. "It is impossible to estimate at this time how much reliance is to be placed upon the therapeutic inoculation of dead bacteria, because as yet chiefly isolated cases have been reported. But since the diseases in which such good results have been reported recover spontaneously, more extensive statistics and greater experience are needed before any satisfactory conclusions concerning the value of the therapeutic inoculation of dead bacteria can be made."

ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF THE ILLINOIS STATE MEDICAL SOCIETY.

GENERAL OFFICERS 1909-10

PRESIDENT - JONATHAN L. WIGGINS, EAST ST. LOUIS
FIRST VICE-PRESIDENT - CLIFFORD U. COLLINS, PEORIA
SECOND VICE-PRESIDENT - JAMES E. STUBBS, CHICAGO
SECRETARY - EDMUND W. WEIS, OTTAWA
TREASURER - EVERETT J. BROWN, DECATUR

(Ex-officio Clerk of the Council.)

EDITOR - GEORGE N. KREIDER, SPRINGFIELD
522 Capitol Avenue.

ASSISTANT EDITOR - GEORGE EDWIN BAXTER, CHICAGO
4603 Evanston Avenue.

THE COUNCIL

CARL E. BLACK, JACKSONVILLE.	J. WHITEFIELD SMITH, BLOOMINGTON.
H. C. MITCHELL, CARBONDALE.	J. Q. ROANE, CARLYLE.
M. L. HARRIS, CHICAGO.	J. W. PETTIT, OTTAWA.
J. F. PERCY, GALESBURG.	J. H. STEALY, FREEPORT.
W. K. NEWCOMB, CHAMPAIGN.	

SEPTEMBER, 1909.

DESPERATE STRAITS OF THE PROPRIETARY MEDICINE TRUST.

A circular entitled "Misleading the People" has reached this office attacking the medical profession in general and Dr. H. W. Wiley of the Department of Agriculture, Washington, in particular. There is so much of interest in this unsound and unfathered document that we publish it in full. Evidently these people are in a desperate strait and persistence on the part of the medical press and profession will shortly put them out of business.

Along the same line we are glad to note that the United States Post-office Department is throwing hot shot into the ranks of the "Cancer Cure Specialist" by refusing the use of the United States mails to this gentry. Recently a fraud order was issued for "The Dr. Curry Cancer Cure Company" of Lebanon, Ohio, who exploited "A Discovery that has Startled the Medical World," guaranteeing to cure the disease in ten to fifteen days for \$25. On analysis the treatment was found to contain a certain amount of "dope" which might in some instances render temporary relief from pain.

A similar order has been issued against the notorious Dr. Bye of Indianapolis, Ind., whose "Certain Cure" is said to have been composed

mainly of cotton-seed oil and an ordinary tonic preparation taken internally and absolutely worthless for the cure of cancer.

Again we call upon the medical profession to lay before the Post-office authorities all the knowledge in their possession which may put an end to these disgraceful sorts of swindling.

The circular abusing the Doctors' Trust follows:

MISLEADING THE PEOPLE—HOW DR. WILEY COMPILES GOVERNMENT REPORTS TO SUSTAIN HIS PREJUDICED OPINIONS.

About two years ago the Doctors' Trust prevailed upon *Collier's Weekly* to publish what purported to be reports of 32 cases of poisoning by headache remedies, which reports, on investigation, proved to be made up entirely of falsehoods and misrepresentations. Of the entire 32 cases not one was truthfully reported and 21 were absolutely without foundation in fact. This was proven by the editor and publisher of *The Medical and Surgical Journal*, who, in an article entitled, "Collier's Methods Exposed," exploded every charge contained in the Collier articles and showed Samuel Hopkins Adams, their author, to be wholly unreliable and absolutely unprincipled. As soon as the American Medical Association (the Doctors' Trust) discovered that they had among them a journal edited by a man with the courage of his convictions, they were quick to realize that this journal would be of great harm to their cause and promptly deciding that the course of the journal must be turned to their good, they at once set about to accomplish the purchase of said journal. This they succeeded in doing and immediately combined it with one of the Association organs, since which time the American Medical Association has attempted to make a mystery of the discontinuance of the publication of *The Medical and Surgical Journal*.

However, the article in *The Medical and Surgical Journal* effectually stopped *Collier's* further assaults on these reliable headache remedies and, as no reputable publication could be found "yellow" enough to issue further assaults of this character, Dr. H. W. Wiley, the great Pooh Bah of the Department of Agriculture, was persuaded to use his power as a government officer to issue a false and misleading "Bulletin" along the same lines, at government expense. Feeling safe from damage suits because of his position, he issued his report along general lines, claiming to have compiled his data from a series of letters received from 400 doctors. He does not say who these doctors are and he does not say that he investigated their reports or responsibility in a single instance. He simply states that he sent a circular letter to 925 physicians containing certain questions and that he received 400 replies. With his wide acquaintance among doctors and his powerful influence among the leaders of the Doctors' Trust, it is easy to conceive that he could readily pick out 400 doctors in the trust whose prejudices are well known and who would gladly make any reply to the questions that they thought would please Wiley.

A demand has been made on the Department of Agriculture for permission to examine the said 400 reports in order to verify Dr. Wiley's conclusions from them, but this demand was peremptorily refused. The reasons for this refusal would be self-evident, even though Wiley's history in other cases were not known. For instance, Dr. Wiley was overruled by a superior power in the corn syrup case, and in the benzoate case, yet he travels about the country at government expense making speeches attacking the products which the government has held to be properly manufactured. In the same way, *i. e.*, at government expense, he sent out 20,000 copies of the late "Bulletin" to the newspapers of the United States, with a letter containing garbled abstracts from it, well knowing that few editors would wade through 86 pages of Bulletin when Dr. Wiley himself had so *very kindly* furnished in succinct form the substance of the report. Few editors suspected him of misusing his power to draw unjust conclusions from a Bulletin issued by the government, and probably no editor, who published Wiley's ab-

stract, suspected that he was being used as a catspaw to pull chestnuts out of the fire for the Doctors' Trust.

Furthermore, though a private individual can not obtain a single copy of Wiley's "Bulletin" except on payment of 10 cents, Wiley himself sent out 20,000 copies to special individuals who he thought would help to advance his personal cause and the cause of the "Doctors' Trust."

In our opinion there is absolutely no law justifying Dr. Wiley in using his official position to compile and issue reports of this character. Government reports should be unbiased, should contain both sides of a question, and should be compiled by persons having no preconceived opinions and no prejudices regarding the subject under investigation. Only the truth should find its way into public documents.

It is well known that the Doctors' Trust is engaged in a work to monopolize the business of curing disease, and if they can have laws enacted prohibiting people from using simple household remedies it means millions in the pockets of the doctors. As is well known, thousands upon thousands of headaches and other minor ills are cured daily by simple and harmless remedies procured from drug stores, and it is the intention of the Doctors' Trust to force every purchaser of the simplest item in the way of medicine to first procure a prescription; for, if they could forbid the use of headache and other household remedies without a physician's prescription, it would mean, as stated, millions of dollars to them. The Doctors' Trust therefore hopes to be able to so frighten the laity by means of the Wiley bulletin, that they will not only refrain from the purchase of these household remedies, but that the legislatures will actually enact laws forbidding the purchase of these simple remedies, excepting upon doctors' prescription. Truth, decency and honor must all be disregarded in order to accomplish their purpose.—*Our Foods and Drugs.*

ANOTHER PENITENT.

And still another member of the Forty-Sixth General Assembly rises to explain regarding his vote on the Osteopathic Bills. Hon. H. A. Shephard of Jerseyville is the latest occupant of the penitential chair. We append a letter written by him to Dr. M. B. Titterington of Jerseyville, a member of the Jersey County Medical Society. We also append a letter written by Hon. M. S. Link of Mitchell, whose change of front was noted in the last issue of THE JOURNAL before we had received his letter of explanation. We are glad to welcome both of these gentlemen to the ranks of the Illuminati.

August 12, 1909.

Dr. M. B. Titterington, Jerseyville, Ill.:

My Dear Doctor:—Relative to my vote on the Osteopathic Bills in the last General Assembly, I desire to say that I voted *against* Senate Bill No. 214 which was known as the one which provided for the appointment by the Governor of a board composed of osteopaths for the licensing of osteopaths, and I voted *for* Senate Bill No. 351, which, as I understood it at that time, required all osteopaths to be examined by the regular medical board and that they would be required to pass the same examination as all doctors do. I think I was not correctly informed on Senate Bill No. 351 at the time I voted for it, or I would not have done so. Yours very truly,

[Signed.]

H. A. SHEPHARD,

Member Forty-sixth General Assembly, Thirty-eighth District.

MITCHELL, ILL., June 31, 1909.

Dr. E. W. Fiegenbaum, Edwardsville, Ill.:

Dear Doctor:—Yours received, and will say that I sent for the record of the House in relation to the vote on Senate Bill 351, and the record confirms the vote of THE MEDICAL JOURNAL. I received the report from Springfield the day before your last came to hand. I wish right here to declare a mistake has been made, for I have never, by expression or implication, action or otherwise, said one word in favor of this new doctrine of recognition of osteopathy, and should I be elected to become a member of the Forty-seventh, the medical fraternity that you are a member of, Doctor, will have no more ardent champion in that body than I will be. You have known me, Doctor, intimately for many years, and I believe that you will testify that I am a man of my word, that I would be one of the last to say or promise one thing and do another. There is no reason in the world why I should have voted for Senate Bill 351.

I acknowledge an oversight in not answering the card received from the secretary of the Chicago Medical Society. I remember receiving such a card from the office, but after my return from the postoffice, when the mail was assorted, the card in question was overlooked, and I acknowledge that I do need my fingers searched if not actually burned for any carelessness or neglect that was apparently shown on my part as to the card.

I trust that this explanation will be satisfactory, and I am an unbeliever in Fads, Spooks or Hobgoblins; then I again reiterate that I did not vote as recorded on the bill. Yours, etc.

{Signed.}

M. S. LINK.

THE DISEASES AND DEATHS OF CHRISTIAN SCIENTISTS.

Christian Science has now existed long enough to begin to reap the harvest which all have anticipated for this most remarkable fad of the last century. A number of the leaders have already passed from earth and their departure gives opportunity to learn what caused their adherence to Mrs. Eddy's doctrines and to draw some lessons for the benefit of the medical profession which has been so heartily abused by these people.

One of the latest leaders to die was Edward A. Kimball, for twenty years a prominent member of what is called "The Christian Science Lecture Board." In the notice of his death we are informed that twenty years ago he became ill and was told by physicians that his malady was incurable. He met an associate of Mrs. Eddy and was cured by Christian Science. When he realized that death was at hand he declined the services of the physicians and said he supposed it was his time to go. He was 64 years old.

The lesson to be drawn on the part of the profession is that extreme care should be exercised in pronouncing the sentence of death in any event. Cases, especially of nervous diseases, are most deceptive and frequently recover where recovery may have seemed impossible. For this and many other reasons members of the profession should be extremely guarded in their expressions as to the termination of any sickness. Instead of stating that recovery is impossible, it is always a safe plan to say that the outlook is unfavorable but that recovery might occur.

A little care in this important detail would spare the profession many embarrassments and should not be neglected. Incidentally it would rob Christian Science of many opportunities to exploit its "miracles."

THE COMING UNITED STATES CENSUS.

The Thirteenth United States Census will be taken next year and because of the importance of this enumeration from a scientific and sanitary standpoint the medical profession will be particularly interested. In the first place there will be no more important duty of the enumerators than the notation of the diseases and the death rate of the people. These items should be accurately and fully stated. This would seem to be an excellent opportunity for urging upon Congress the establishment of a health department with its head as a member of the President's cabinet. We should like to have our members interested in this important movement and insistent on sustaining the President in his efforts to secure honest and capable persons, regardless of their political affiliations. Here would seem to be an opportunity for young practitioners to secure employment temporarily. As no person afflicted with tuberculosis is eligible, it is apparent that every one of these appointees must pass through a medical examination, which we hope will be made carefully and that no consideration of friendship will permit the certification for appointment of anyone afflicted with this disease. As every appointee must have resided at least one year in the district, his medical history, if bad, will probably be known to the medical profession, and with proper care those diseased can not hope for work of this character.

The opportunity offered the medical profession by this decennial enumeration should not be neglected by the profession of Illinois.

Correspondence.

THE SEPTIC TANKS OF CHAMPAIGN AND LAKE FOREST.

CHICAGO, Aug. 17, 1909.

TO THE EDITOR ILLINOIS MEDICAL JOURNAL, Springfield, Ill:

Dear Sir:—Kindly give the following correction an appropriate place in your paper:

In the discussion of Dr. Sanger Brown's paper in the last number of THE JOURNAL, page 225, I am quoted as saying, "The septic tanks of Lake Forest and Champaign are doing excellent work, but prove that the work must be under the supervision of competent engineers." Permit me to state that I referred in the discussion to the septic tank of Champaign as one which is not doing satisfactory work, although it is under excellent scientific supervision. On the other hand, I referred to the septic tank of Lake Forest as one which is working satisfactorily, in spite of negligence.

Thanking you in advance for your kindness, I am,

Yours very truly,

DR. ARTHUR LEDERER.
Chairman and Bacteriologist.

A RECENT VISIT TO THE SURGICAL CLINICS OF THE ENGLISH HOSPITALS.

The American physician is cordially received by his English brethren and a tremendous amount of surgical work may be seen in a comparatively short period after one has learned his way about from one hospital to another. In London the hospitals are so widely scattered that much valuable time may be lost before finding out the locations of the different ones and the hours at which operations are to occur.

I found last summer's experience more valuable than a similar one six years ago spent in Berlin and Vienna, for, while one soon obtains a good working knowledge of German, still he is bound to miss a good deal that would otherwise be helpful by not having an intimate acquaintance with the foreign language.

London is naturally the mecca for the American doctor in England. While many London surgeons are doing general surgery, a large number are following some special line. Sir Victor Horsley operates at the National Hospital usually at 9 o'clock. As students twelve or fifteen years ago, Sir Victor was quoted extensively in surgical lectures on the brain and cord, and it seems a surprising fact that he is still under fifty and has all the enthusiasm of a younger man. After his clinic at the National, which consisted of removing two brain tumors and one Gasserian ganglion, we made the rounds of the wards with him. He is very approachable and it is said of him that he will make an appointment for 6 o'clock in the morning to take up the discussion of some surgical problem. Sir Victor is also on the staff of the Chelsea Hospital.

Mr. Freer of St. Peter's Hospital, in Henrietta street near the Strand, can be seen Wednesday afternoons. He is a recognized authority on prostates and his own method of removing the gland through a suprapubic incision is used extensively by English surgeons. The incision is a small one, two or three inches in length. After the incision no instrument is used, but, with the forefinger of the left hand in the bladder and the corresponding finger of the right hand in the rectum, the gland is shelled out between the two fingers. The whole operation commonly occupies only five or ten minutes. He has gotten through in three minutes, but a difficult case may take an hour and a half. Mr. Freer sutures a large rubber tube into the bladder and irrigates the bladder twice a day. In four days this large tube is replaced by a smaller and the patient is allowed to get up as soon as the tube is finally removed, in eight to twelve days. His results under this method have been remarkably good in the class of cases with a relatively high mortality.

Mr. Arbuthnot Lane operates at the Great Ormond Street and Guys Hospitals. At the former, a children's institution, he does orthopedics and other operations on the young. His cleft palate operation consists in pushing back the intermaxillary bone instead of removing it; then bringing flaps from hard palate with the periosteum from either side and suturing them to the intermaxillary in front and to each other behind. It seems to pack the anterior part of cleft very full of tissue; but one is impressed by the ease with which the flaps are brought over. There is no

pulling or stretching. He uses very fine interrupted silk sutures and a tiny needle holder and a needle of his own invention. At Guys Hospital Mr. Lane does his general work. In fractures, necessitating a direct immobilizing, he uses steel plates with screws. He seldom wires bones and says that the plates become imbedded and do not need to be removed, and that they do not give any trouble afterward.

J. Bland Sutton, whose classification of tumors is well known, may be seen at the Middlesex Hospital, in Mortimer street, two afternoons a week, Wednesdays and Saturdays, at 1:30.

Mr. Barker, at the University College Hospital, is doing more work in spinal anesthesia than any other surgeon I saw in England and has good results with it. He uses a derivative of cocain. One case, only, out of rather more than a dozen went wrong—a carcinoma of the splenic flexure of the colon. The patient collapsed on the table and was revived with difficulty. Mr. Barker thought this was due to traction on the tumor, which he was unable to remove, but made an anastomosis between the transverse colon and the sigmoid.

Since the retirement of Sir Frederick Treves Mr. Mouillin is the senior surgeon on the staff of the London Hospital. This hospital, while a distance out in White Chapel road, East End, is well worth a visit. Mr. Mouillin did a nephrectomy, removed an ovarian cyst and two appendices the afternoon we were there.

Mr. Gould at Middlesex, Mr. Godlee at the University College Hospital, Mr. Wallis at Charing Cross Hospital, and Mr. Berry at the Royal Free Hospital are skilful operators.

Mr. Mayo Robson, since coming to London, several years ago from Leeds, has received no hospital appointment, but operates at nursing homes. In London the positions on the staff of a hospital are arranged according to seniority and it is extremely difficult for a surgeon coming from another town to get on the staff. Those who do not are compelled to establish private hospitals or take their cases to the private hospital of some other surgeon; often several surgeons club together and establish an institution of this sort.

It is not necessary to present letters of recommendation. The writer overlooked at the last moment those that he had intended taking along and found that one's card given to the clerk will be handed to the surgeon and insures the visitor an invitation to enter. The clerk will also furnish all information as to the regular clinics and the surgeon or his assistant will send word to the visitor (on his giving his London address) the list of operations for the morrow and the hospital at which the work is to be done.

In the provincial towns of England the visitor sees a lot of good work, with the added advantage that, as a rule, it is not so scattered as in London, one main hospital taking care of the cases in a city of half a million or more people. The distances are so short and railroad service so adequate that, even in a short stay, it would be well to plan to go to at least some of these towns.

At Liverpool Mr. Jones is giving his attention largely to orthopedics. Formerly a general surgeon, he is now one of England's best orthopedists. He gives up one day a week (Sunday) to charity. Scores come on this day, beginning early in the morning. Cases are seen, diagnosed, treatment prescribed, braces and splints made, fitted and refitted, before the patient leaves the building.

At Manchester, Mr. Stanmore Bishop; at Birmingham, Mr. Gilbert Barling; at Sheffield, Mr. Sinclair White, are all capable men.

Sailing for England from Montreal, I utilized an idle day in visiting the general hospital there, the scene of Dr. Osler's early work, an institution of only about 100 beds in his day. So in England I made a trip to Oxford to see the present field of endeavor of this well-known educator. This is a town containing many beautiful colleges. The medical department is well equipped, and, while school was not in session, I made the round of the hospital and other buildings.

At Leeds, England, a town of 500,000, Mr. Moynihan and Mr. Littewood have the major part of the surgical work.

Newcastle-upon-Tyne offers the visitor more to see surgically in a given time than can be seen anywhere else in England. The Royal Infirmary of 600 beds there is entirely a charitable institution, provided for by private donations, and draws upon the population in the town and the surrounding country of at least three-quarters of a million. During my stay 1,000 operations were performed, 400 a month. The most in any one day was 28. Four surgeons were operating at one time in one building on the same floor. It was, of course, impossible to see all of these, but the lists were posted and the visitor could make his choice. The general surgical nurse, who goes about from one operating room to another to oversee, was accommodating enough to inform me whenever an operation I particularly desired to see was being started in one of the other rooms. Visitors were given gowns and invited into the arena; it being summer and no students present, we had an uninterrupted view. All of the general surgeons do gynecology, ten beds only being in charge of Dr. Lyle, a gynecologist. A like number of beds are set aside for Messrs. Ridley and Whyllis, who specialize in eye, ear, nose and throat. Four surgeons, each with his assistant, have the remainder, and so great is the demand that operations of convenience are postponed until a vacancy occurs. The senior surgeon here is Mr. James Rutherford Morrison (general practitioners in England have the title "Doctor" and surgeons "Mr."). He uses the transverse incision in all his gall-stone and appendix operations, laying open the muscles far over on the loin. His breast operation, which is a modification of the Halstead, is a most thorough one, removing all fat and glands from the axilla, the supraclavicular glands, the chain of lymph vessels on the opposite side along the sternum, the pectoralis major and minor muscles, and the fascia anterior to the upper portion of both recti muscles. An hour and a quarter is about the usual length of time that is needed for him to perform this operation. His mortality is very low, and he attributes this to the fact that he keeps the patient very warm

on the table and has two assistants to check hemorrhage. So successful has he been that cases to-day, eighteen years after the operation, are free from any recurrence.

Mr. Martin is an exceedingly rapid operator and has done about two hundred operations on the knee for the removal of loose cartilages. He finds these cases most frequently in coal miners and football players. Only about 8 per cent. are external cartilages. Mr. Angus and Mr. Rutherford are the other two surgeons. Mr. Angus showed in a clinic a good collection of elbow joint cases, which had had a resulting ankylosis after fracture. He had resected the lower end of humerus and obtained a wide range of motion in all. The four assistant surgeons have each a certain number of beds and stated days for holding their clinics. Mr. Richardson has done considerable cystoscopy and removes vesical calculi swiftly and skilfully. Mr. Turner does efficient and clean operations on the neck, using a curved incision for removing tubercular glands. I saw Mr. Clay cut down on a kidney containing stones with the intention of doing a nephrectomy, but, palpating the other kidney through the incision, found it likewise affected. He removed five stones and brought the kidney outside to stop an obstinate oozing, leaving it outside for four days wrapped in dressing. In five weeks he performed the same operation on the other kidney, removing four stones. Mr. Leach is clever in hernia, doing the Bassini for inguinal and Parry's operation for femoral.

At the age of sixty comes the surgeon's retirement from the staff of this infirmary, and after this he frequently gives up the practice of surgery. The surgeons at Newcastle have private hospitals where operations on private patients are performed; only charity cases are allowed in the infirmary.

GENERAL CONSIDERATIONS.

1. Many of the English hospitals have not the equipment of the modern buildings erected in America. Improvements, however, are being made all the time and the proverbial slowness attributed to the English in general can surely not be ascribed to her medical men.

2. About three-fourths of the English surgeons wear rubber gloves. Those who do not usually require their assistants to do so. The word has come to them from Germany, however, that many of the Germans have discarded gloves on the ground that the expense is great—that the results are no better.

3. More than one-half wear caps, but very few have a covering over the face.

4. Their asepsis is, on the whole, good. They do not have extensive scrubbing of the hands or of the patient before operating.

5. The antiseptics vary; turpentine is used on the hands, followed by alcohol. Biniodid of mercury, bichlorid and lysol are used to rinse the hands during operations.

6. Many operators wear rubber boots to protect the feet. The floors are damp, due largely to the practice still prevailing of washing out the abdomen, even in clean cases.

7. Some English surgeons do not change to an operating suit, and it is no uncommon sight to see an operator still wearing his street suit, minus the coat, even retaining his collar and tie, up to the end of a five hour clinic.

8. The nurses are well trained and capable; very painstaking and efficient in their work.

9. I was impressed with the high standard of the general practitioner in England. The lines are more closely drawn there and few general practitioners do even minor surgery. It was noticeable, though, that, when his cases came to the hospital, the family doctor had made a diagnosis that was later confirmed by the surgeon on the table.

10. It was an agreeable surprise to observe the speed with which the average English surgeon works. I frequently saw eight or nine major cases gotten through with in three hours of operating.

11. The medical schools are of a high order and each student must have given anesthetics to the number of seventy-five before receiving his degree. Most students give many more than the required number.

12. Anesthetics: Ether has come into vogue and is given by the drop method more than any other anesthetic in England to-day.

T. W. CURRY, A.B., M.D.,
Streator, Ill.

COUNTY AND DISTRICT SOCIETIES

COOK COUNTY.

CHICAGO MEDICAL SOCIETY.

A regular meeting was held May 26, 1909, with the president, Alfred C. Cotton, in the chair. The subject for the evening was "The Abuse of Medical Charities and Its Correction." Papers were presented as follows: Medical Charity from the Point of View of the Patient," by Alice Hamilton, in the absence of Jane Addams, who was to have spoken on the subject, "The Sociological Aspect of Medical Charities." "The Ethics of the Present Movement," by E. A. Fischkin. "The Professional Aspect of the Present Movement," by E. L. Kenyon. "The Proposed Remedy, Its Feasibility and Its Disadvantages," by John M. Dodson. The discussion was opened by Alexander M. Wilson and continued by E. Wyllys Andrews. John A. Robison, R. S. Yarros, M. Malkin, Chauncey W. Courtwright, Charles A. Parker, H. E. Mock, L. Harrison Mettler and the discussion closed by E. A. Fischkin.

Dr. A. J. Ochsner offered the following resolution:

Resolved, That this meeting of the Chicago Medical Society heartily endorses the plan of the committee of the society for the correction of the abuses of medical charities, and recommends that the referendum vote in June on this subject be the largest ever given for any movement in this society.

The resolution was seconded by L. Harrison Mettler and unanimously adopted. Adjourned.

MEDICAL CHARITY FROM THE POINT OF VIEW OF THE PATIENT.

ALICE HAMILTON, M.D., CHICAGO.

Memorial Institute for Infectious Diseases.

The subject of the abuse of medical charities has occupied us for several months now. We have had many papers and a still larger number of informal letters on this question by practitioners from all parts of the city and representing practically all classes of the profession. And yet, in all this wealth of discussion, I think that the side of the recipient—in some cases the victim—of medical charity, has not been adequately represented. For the last twelve years I have lived at Hull House, a social settlement in one of the great foreign quarters of Chicago, and I should like to present the question as it appears to those who live among the people who fill our dispensaries and free hospital beds.

There is no place better adapted to the study of "medicine as she is practiced" than a settlement. Our neighbors are necessarily among the victims of all the mistakes and crimes perpetrated in the name of medical practice in this city. If the State Board of Health is lenient in its standards of medical teaching, it is neighborhoods like ours that receive the half-educated graduates of inferior schools. It is our women who employ the midwives licensed to practice without any practical knowledge of obstetrics or asepsis. And it is our people who frequent the dispensaries, good, bad and indifferent, because they have no knowledge of how to distinguish the good from the bad. The County Hospital is recruited from neighborhoods like ours, and the feeble and inadequate provision made by the city for free medical care in the home is all that many of our people have to depend upon in periods of hard times.

In such a neighborhood one can study the various motives which impel the poor and the nearly poor to seek medical charity, and one can also observe the character of medical treatment which is furnished them in the name of charity.

The question, then, naturally presents itself to us in two aspects: First, how many people are there who are justified in asking for free medical care, and, second, what sort of care is now given to those who really need it?

The part of Chicago around Hull House is inhabited by Irish, Italians, Greeks, Bohemians, Poles, Germans and the various nationalities of Jews. The last named seek the dispensaries and hospitals of their own accord; the others are far less willing to do so. They usually prefer to choose their own physician and to pay him. Yet a very large number of these people also go to the dispensaries and free beds in the hospitals. There is no need to explain the motive that actuates the great majority of them, for it is simply poverty, and all of us are agreed that the very poor must continue to be treated as objects of charity by the medical profession. It is the others of whom I wish to speak, the independent poor, who do not seek any other kind of charity, except medical, and who can not with truth call themselves destitute. These are the people against whom is aimed the system of control by investigation proposed by the Committee on the Abuse of Medical Charities and endorsed by the vast majority of the members of the Chicago Medical Society.

At first thought, most people will say that a person who is not in dire financial straits, who can pay a fair fee to a physician, has no right to apply for free treatment, and yet if one looks below the surface, if one knows personally the people of this class and their past histories, one will be forced to say that many of them need free care and should, for the good of the community, receive it.

There are, in the first place, families, the number of whom has increased enormously during the last two years of hard times, who can maintain a proper standard of life only if there is no unusual drain on the family purse. For these people to continue paying doctor bills during a long period of time means that they must lower their standard of living, that they must cut off some of the necessities or decencies of life. The time comes when it is only wise and right for such a family to leave its physician and seek free medical care. Yet these people, for the most part, would refuse to do so and would go untreated if they knew that a visit to a dispensary meant an investigation by an agent of the United Charities. The same thing would be true of a large number of cases whom we are constantly urging to go to dispensaries and hospitals, those people who could perhaps pay, if the need were very great, but who do not feel justified in spending money needed for other things, upon medical treatment which is not absolutely necessary. Thus we find children with uncorrected errors of refraction, with adenoids and hypertrophied tonsils, with skin diseases, with chronic otitis media; all needing treatment yet able to do without it. A woman will suffer for years rather than subject her family to the expense of a pelvic operation and a sojourn in the hospital, so long as she can manage to keep up without it. It would seem that the good of the community demanded that such people should receive the care needed to make them healthy workers and yet not be obliged to lower their standard of living in order to receive it.

There has been much criticism of the free obstetrical dispensaries, which are said to rob the physician of the best part of his family practice. But if it is to the interest of the community that women should not die in childbirth, or recover with health permanently impaired, and that babies should be saved from ophthalmia, then we must have the obstetrical dispensaries. A large number of the people in our neighborhood can not afford to pay more than five or ten dollars for obstetrical services. There are midwives who will come for five dollars, there are physicians who will take charge of a case for ten dollars, but it is needless to say that no good physician can afford to give for that price the care that the woman really needs.

Finally there are people who can pay the fee usual in the neighborhoods like ours and who are accustomed to do so, people who are perhaps among the best paying patients in the practice of our neighborhood doctors. I have myself, as have many Hull House residents, urged some of these people to leave their doctors and to go to some good free clinic, as I feel sure you would all do if you were in our place. These are the victims of the ignorance and carelessness of our pro-

fession; the people with serious organic troubles who are treated for months by physicians too hurried or too unskilled to make a proper physical examination and discover the real nature of their ailment. I can not tell you how many cases of incipient tuberculosis and how many cases of advanced tuberculosis the dispensaries have discovered for us among people who have wasted months in futile, inappropriate courses of treatment. Such people could not pay the fee of a first class man; they could not pay for an examination of the sputum, blood, urine, etc., yet no one can deny that they need it, and that a system of control which made it impossible for them to enter a dispensary would be at fault somewhere. In this connection I might perhaps speak of another objection to the plan of the Committee on the Abuse of Medical Charities, and that is, the extreme difficulty of carrying it out. The very poor, who are already on the books of the United Charities, would present no difficulty, but the other classes mentioned above would call for a very skilled and tactful corps of investigators. It is comparatively easy to say how much of the family income should be expended for rent, fuel, food, etc., but it is a very different matter to decide whether the expense of an illness or an operation can or can not be borne without a disastrous lowering of the family standard of living.

When we come to look at the plan in its effect upon the character of medical care furnished to the sick poor, we are told that it will improve this by lessening the over-crowding now admittedly present even in our best dispensaries. Granting this, an undeniable improvement, there seems to be no other way in which the plan would benefit the poor, no other abuse which would be corrected. I can not agree to the statement that a strict investigation would to any extent help the over-crowding of the County Hospital. Perhaps it is different in other parts of Chicago, but certainly in our part of the city nobody goes to the County Hospital who can possibly go anywhere else, the reason for their unwillingness lying in the over-crowding with the resulting inadequacy of nursing and medical care. Nor does the plan provide in any way for that great need in our city—a system of out-practice among the poor. If, as we all admit, there are people who need care in the dispensaries, there must surely be people who are too sick to visit them and who need the care in their homes. All that the plan would accomplish would be to lessen over-crowding in the dispensaries, but it would do this in many cases at the expense of people who should be encouraged to come instead of being sent away.

It may seem that we are very arrogant to demand, as we apparently do, an amount of charitable service from the medical profession which we would never think of asking from any other profession. Perhaps the reason for this lies in our feeling that the free service furnished by physicians is not entirely charity, that men are prompted by an enlightened self-interest to seek positions on the staffs of dispensaries and hospitals, and that the patient is not only a recipient of charity, but a useful and necessary adjunct to the training of medical practitioners. And if we follow out this very well founded theory we may arrive at a quite different plan for the control of our medical charities, one which will correct the abuses of, as well as by, the applicant for such charity. If we take up the question of medical service in relation to our system of teaching medicine we see at once that it is an indispensable part of the latter. We have not, however, in this country, put our poor patients to anything like their proper use in this respect. Our graduates must still go to Europe in order to see a large amount of clinical material and our schools are still subject to the severe criticism of Europeans because of our inadequate clinical facilities. It would seem, then, that instead of crying out about our free hospitals and clinics and denouncing their over-use, we should encourage them in order to give medical students and recent graduates the experience they need. To do this, all of the free medical care now furnished should be carried on in connection with and as a part of the teaching of medicine, not only the dispensary work, but, what is even more important, that furnished by the hospitals. If every free case, in- or out-patient, is used for study, then we need have no scruples as to pauperization, as to giving for nothing that which should be paid for. The patient will pay, in that he will

serve as material for clinical teaching. Perhaps even more valuable to the student than dispensaries and hospitals would be a well controlled system of out-practice among the poor, conducted by the medical schools and offering the student an opportunity to learn what hospital practice alone can not teach him. Anyone who is familiar with the free medical care now furnished in our city will agree with me when I say that such a plan as this would result in an enormous improvement in its character. If we are to give the poor medical charity at all, it should certainly be of high character, and this is possible on a large scale only when the institution furnishing it is used for teaching purposes. It is not only that a class of students acts as a spur and a stimulus to the clinician, but also that he can combine in this way the time devoted to teaching with that devoted to his free hospital cases. If the Cook County Hospital were freely used for bedside clinics we should, I am sure, hear far less criticism of it from ex-patients than we now do.

In pleading, then, for a new attitude toward the so-called abuse of medical charity, we would appeal, not so much to the sentiment of pity as to the enlightened self-interest of the profession. We would urge them to make all possible use of the free patient, except for pecuniary gain, knowing that in this way the interest of the patient himself will be best served. Instead of deterring people from seeking medical charity, we would demand from those who do seek it an equivalent of service by requiring them to act as subjects of clinical study. Overcrowding in the dispensaries would be corrected, not by refusing applicants, but by increasing the number on the staff. It seems absurd to send patients away because the clinicians are too few to handle them properly, while there are dozens of applicants for places on the dispensary staff, all of whom need the experience which is now being wasted.

Were I to outline a rival plan to that of the committee it would be as follows:

1. A stricter policy on the part of the State Board of Health which would result in closing the inferior medical schools, and in refusing licenses to untrained midwives, for the applicants for medical charity are in part recruited from the victims of malpractice.
2. Limiting free dispensary service to that conducted for teaching purposes by accredited medical schools.
3. The enlargement of the staffs of such dispensaries, until each clinician is expected to handle only a limited number of patients.
4. The institution of a system of out-practice among the poor, carried on by the medical schools as a part of their curriculum.
4. And, finally, the admission of students and instructors to all the wards of Cook County Hospital and to the free wards of private hospitals.

THE ETHICS OF MEDICAL CHARITIES IN THE PRESENT MOVEMENT.

E. A. FISCHKIN, M.D., CHICAGO.

The present movement to regulate the conduct of the medical profession in the way of dispensation of its charities, though started, apparently spontaneously, within our society, is not confined to Chicago, not even to America. It is now universal. It is being agitated among the medical societies of Germany and Austria; it is, as stated in a recent letter to *The Journal of the American Medical Association*, now the burning question of the day for the physicians of Paris, and is there nearing its solution. It is a universal movement. For ethics is the child of universal want. The more general and widespread the want and the need of a people, or of a certain class, the more intense is its desire for a new way, one higher in its ethics. For ethics means dissatisfaction with the present state of things, it is the attempt to improve, to reform, to find a way out of conditions which became unbearable.

Medical ethics may therefore be defined as a general longing for deliverance from conditions which became intolerable a universally felt desire for improve-

ment which is turned into a demand. Medical ethics has ceased to be mere medical etiquette.

The present movement for regulation of medical charities is pre-eminently ethical, because it seeks to eradicate evils which are universally recognized, because it tries to remove these evils not for the sake only of its own material benefit and economic advantage. Let it be said at the outset that the present movement is not an attempt to improve our economic condition by throwing off the burden, which is as old or older than Medicine itself; it is not an effort to curtail medical charities. Through the nature of our calling, or the effect of our education and training, the necessity to sacrifice our time and skill and often our strength and material interest at the altar of charity is felt by every reputable physician. Charity is a cardinal virtue of medicine, it is inherent in our calling, and to paraphrase the words of Voltaire, one might say, that if there were no opportunities for the exercise of medical charity it would be necessary to invent them. What the present movement tries to accomplish is not to abolish our unselfish Samaritan duties, but to purify them from degrading influences. It comes not to destroy, but to fulfill. It intends not to lower the standard of medical charities, but to elevate it, to lift its administration to a higher plane of responsibility and of justice, to eliminate the possibilities for its misuse and abuse, to put it on a more ethical basis.

Medical charity, in the loose disorderly manner in which it is managed now, is grossly unethical. For medical services, rendered under the lofty claim of charity, must have no motive of self-interest behind it. True charity must rise above personal consideration. Disinterestedness is the only test which gives it an ethical quality and lends it moral worth. But medical charity, as it is now administered, is divested of all ethical qualities, for it serves as a means to a dozen ends and stands in relation to a number of interests, which all try to use it to their own advantage. The society which makes the management of a dispensary or a hospital subservient to the interest of its church, the hospital which makes use of the charitable service of its medical staff in the interest of its finances, the college which throws its doors wide open to the public in the interest of its teaching facilities, the physician who gives his services indiscriminately in the interest of his own development and of his reputation, they all make the medical charities of to-day unworthy of its name, being unethical in their motives. And being immoral in their motives, they can not have the moral power to restrain other interests from preying upon their work, and the result is the most fragrant abuse of charity by people who have no claim to it, and the most inglorious defeat of the ends of charity.

The loose, disorderly way in which our charities are managed, the lack of moral obligation on the part of those who seek to participate of their benefits, the absence of moral order in its administration, by necessity results in the lack of moral discipline and the absence of moral responsibility on the part of those who administer the charity. The most vivid and strongest impression gained by impartial observers of our charities is that produced by their inefficiency, the recognition of their poverty in positive, beneficial results. The most severe condemnation of the present administration of medical charities and the most humiliating, by its reflection on the medical profession, is the complaint of the charities organizations that their charges, the deserving poor, whom they are sending to the dispensaries for relief from their ailments, are getting no relief; that often a poor woman, to quote them verbally, who applies to them for help, brings as a proof of her disease five or six prescriptions, which she has collected from different dispensaries, without any visible improvement of her health. This inefficiency of service is the main reason why these charity organizations are willing and anxious to lend us their material and moral forces for the attempt to reform the administration of medical charities, in the expectation to raise their efficiency. "My personal feeling," says Mr. Kingsley, in his communication to *The Bulletin*, "is that the dispensaries and hospitals are themselves responsible for the abuses that have developed. They have no check or balances which would reveal to them the necessity and efficiency of their work."

Our own dignity and the honor of our science put upon us the ethical obligation to effect such a reform and to remove the most active causes which go to discredit the profession as well as the medical science. For there is no doubt that the growth of quackery and of all kinds of modern medical charlatanism, of which we have so much reason to complain lately, is due to a great extent to the disappointment of the great masses, the habitués of our free dispensaries, who alone are the supporters of the considerable army of medical fakers and who fall an easy prey to their allurements, after they have been disappointed by what they took to be promises of medical science.

The regulation of our medical charities and the introduction of a moral order into our institutions may therefore be regarded as a moral duty which we owe to our profession and to our science.

And there is yet another ethical aspect to the movement. The abuse of the medical charitable service by institutions, the flagrant misuse of this charity for persons and for interests, which can have no claim to our free service, is such an insult to our self-respect and an indignity to our intellect, that we are in duty bound to resent it. Ethics means in a certain sense the assertion of ourselves. Self-respect is the first duty of personal ethics. But there is no more lamentable deficiency of personal ethics than the lack of self-assertiveness which physicians show in their relation to institutions which rely entirely, almost exclusively, upon them and their service. This lack of self-assertiveness can not be compatible with a high feeling of responsibility. He who questions that there is a duty to himself is liable to question sooner or later whether there be any real duty to others, for others are only human beings like himself, and the physician who permits lay administrators to exclude him from all participation in the control of his own work, who permits them to waste his noble efforts and his humanitarian sympathies on the unworthy, without raising his voice in protest and without demanding full power to regulate his own charities, is hardly conscious of his own humanity.

The regulation of medical charities is also a moral duty which we owe to society as well as to ourselves. The crowding of people, able to pay, into the free dispensaries and hospitals not only deprives the real poor and deserving patients, for whom alone these institutions are built, of their chance to get relief, but, as has been pointed out so many times, works a moral injury to those imposters themselves and to society. For no person can receive for nothing services for which he is able to pay without moral deterioration, and the presence in the community of such persons, preying on public charity, has a tendency to tempt others to sink to their degraded level.

And last, but not least, there is the ethical duty which institutional physicians owe to the profession at large, to the general practitioners, from whose clientele the able-to-pay patients are recruited, and whose practices are undermined by the drifting away of these patients. There is a logical consequence in the fact that 25 per cent. of the population of Chicago are receiving free medical aid, a fact responsible, to a certain extent for the reduced economic conditions of the physicians of this city, of whom, as is claimed, 50 per cent. can not afford to pay \$10 for inserting their names in the telephone book. The institutions, who derive a benefit from their public clientele, the institutional physicians, who increase their skill and advance their reputation by this public practice, will soon be forced to recognize at whose expense they are promoting their own interest. Justice will demand that the right which the physician has to his practice be respected, and that his honest service, which he is ready to render to his patients, and which his patients need, shall not be beaten down by competitors who care not for useless and ruinous waste.

The "right to practice" and the demand that it be respected will become the watchword of medical organizations and the central idea of their code of ethics. It will become a demand which no institution, no matter how strong in influence, will be able to ignore, no physician, no matter how independent in action, will be able to disregard, for at its basis lies the principle of justice, and a united profession stands at guard.

DISCUSSION ON THE ABUSE OF MEDICAL CHARITIES AND ITS CORRECTION.

Mr. Alexander M. Wilson:—Dr. Dodson has said so very well what I intended to say that there is very little left for me to add in the way of discussion other than to endorse what he has said.

I find in looking at the program that I represent the Bureau of Charities. There is no longer any Bureau of Charities in the city of Chicago. Happily, the Bureau of Charities has consolidated with the Relief and Aid Society, and now there is one united society representing the non-Jewish people of the city of Chicago to which doctors and others may refer the needy for charitable help. The plan we developed the past winter in conjunction with the Chicago Medical Society can now be operated much more systematically through the United Charities. I am speaking to-night instead of Mr. Kingsley, the superintendent, who has been called out of town, but I assure you that the new society will go on with the plans as we have worked them out, very much on the lines Dr. Dodson has described to you. The United Charities will maintain a registration bureau where it will file all cards sent in by the dispensaries. These cards will give a certain amount of information, and in filling them out at the dispensary it will be possible to determine on the spot, in most instances, whether the patients are able to pay for treatment or whether they deserve free treatment. In doubtful cases the United Charities Society will determine whether these people deserve free treatment or not.

There is a new development in one section of the city that you may not be familiar with. It is worth describing briefly, as it throws a rather interesting sidelight on some of these questions. The United Charities has worked out, with the aid of physicians of South Chicago, a plan for the free treatment of people far removed from the free dispensaries. With the South Chicago branch of the Chicago Medical Society our society has agreed upon a plan of having the doctors of that branch take turns in giving free medical service to people who have been previously investigated by our agents. The churches and the various social agencies report their cases needing free treatment to our office, which in turn calls upon the physician on duty that day. The doctors in that part of the city, without having established a free dispensary, are giving to the poor of that section free medical service and the possibility of abuse is entirely obviated.

Dr. Wyllys Andrews:—Nothing I say, I am sure, can add to the impressiveness of the words we have heard this evening from the different speakers, coming, as they do, from people directly in personal contact with the poor of this city, who are most concerned in this question.

It occurred to me, as I listened to the discussion of the needs of the poor people and their bearing on the duties of the medical profession, that part of this problem is due to a change, an evolution both in the relation of professional men to the public and to hospitals. We have only to look back a few generations to practically a feudal status of professional men. I am informed that until the present generation, no physician in the old country or in England, at least, could collect a medical bill by law. Such services were paid for by an honorarium, or, if translated into modern terms, a tip. Probably all professions were about on a par under the feudal state of society out of which so many of the present poor of Europe have come to our shores. It would not please a man who earns his living by his pen to be compelled to live in the state of public appreciation of the time of Byron, for I read only to-day in a review that then it was considered beneath the dignity of a poet or literary man to charge a sum of money for his work.

The state of the public mind towards hospitals is also changing, for it is only within the last twenty years that the well-to-do would go to a hospital at all. We can all remember the time when the suggestion to go to a hospital would probably have been met with the remark, "No, I am able to pay; I won't go to the hospital; only paupers go there." The prosperous people were always treated in their houses. To-day well-to-do persons prefer to go to hospitals, where we see the two systems overlapping and conflicting. It is due to these tendencies

holding over from the past that we have some of the embarrassments which we are considering, so that the educational value of this movement, both towards ourselves and the public, is one of its most important aspects.

It is unnecessary for me to emphasize the importance of the resolution which is before this society in the form of a referendum. Every one who took the trouble to read carefully the well-prepared report in the Bulletin stands ready to cast a favorable vote for its passage. It is admirable in that it does not go too far. It takes one safe step at a time. It puts us now in the position of correcting, first, the dispensary abuse, purposely leaving for the next step the correction of hospital abuse.

I agree with Dr. Kenyon that we abate our finer sense of duty towards the poor whom we are helping when we learn that we are imposed upon. Personally, I have not only given time, but a certain amount of money more or less regularly for such work. I can not conscientiously say that I do my best for poor people if I am in the frame of mind of feeling imposed on. If any one here is not prepared to vote for this particular resolution let him read it up. I want to urge every member of the Chicago Medical Society that, when the election takes place, he vote aye in the referendum.

Dr. John A. Robison:—The question before us to-night is familiar to you all, and it is hardly necessary for me to add a word in regard to the necessity of taking favorable action upon the referendum. I want, however, to second Dr. Andrews' remarks in urging you to vote for it.

I think the first speaker of the evening, Dr. Hamilton, struck the nail on the head in two or three particulars. In the first place, in regard to the inadequate service which the deserving poor receive from physicians who are in their own district whom they naturally consult. That is something that we as a medical organization can help to correct to a large extent, and it occurred to me while she was speaking that possibly this society might help her in one difficulty, and that is the difficulty she stated they met with in regard to the treatment of these deserving poor at their own homes. We have now fourteen branch societies. These branches are scattered all over the city, in fact, almost all over the county, and it has occurred to me that this committee, which has taken up this question, might not only work out a plan whereby the profession will be saved the embarrassment of imposition by people who are frauds, but they might best work out the problem of how to care for the deserving poor in their own different districts in their own homes, and the plan that has been mentioned by Mr. Wilson which has been instituted in South Chicago might be followed throughout the city. That is, that the different branches might appoint physicians who will be willing to give a certain amount of their time and services to the deserving poor in their own districts, if notified by the United Charities that the individuals in their district needed care. That would enable the rank and file of the profession to learn very soon who are the deserving poor.

It seems to me, in considering the abuses of charity, which touch the pocket-books of the profession, that the number of able-to-pay patients found in dispensaries is small. The able-to-pay imposters are, as a rule, the patients who go to the hospitals, and we have been promised after trying this plan of work in the dispensaries for a year or so that the committee will then extend their labors and try to protect the profession from imposition by able-to-pay hospital patients. I would suggest it would be just as good a plan to do this at present as at any other time, because I believe the hospital is the place where the greatest imposition is practiced. I know, everyone knows, that there are very few hospitals in Chicago who make any attempt to protect physicians, not only physicians who are attending physicians to those institutions, but outside physicians, by not receiving patients in free or endowed beds who are able to pay. I have been connected with hospitals for a great many years, more or less, and have been imposed upon and got no help from the hospital management. I have been connected with one hospital for a great many years, and I have tried time and again to get the Board of Managers to institute a method of safeguarding the ad-

mission of patients who are able to pay to endowed beds by having the examining physician take the history of the case, the names and addresses of the parents, brothers, sisters, occupation, ability to pay, etc., and then have the hospital notify the physician that this or that patient is able to pay the attending physician or attending surgeon, but I have never been able to get them to do it.

The plan of the committee which is proposed is an excellent one. It seems to me, however, it might not be a bad idea to consider the plan which is adopted in London, which might be operated in conjunction with the present plan. The abuse of medical charities in London became so bad that the better hospitals there were compelled to establish an organization. This organization is called The London Hospital and Dispensary Reform Association. It is composed of three members from each hospital and each dispensary. This association met together, combined themselves together, and agreed that each hospital and dispensary which belonged to this association would employ a registrar. The duty of this registrar was to take the names, addresses, etc., of people and find out the financial condition of each patient, and if there were any patients able to subscribe twenty-five shillings per annum to the hospital they were refused free treatment. I believe it would be a good plan for all the medical organizations in Chicago, the Chicago Medical Society, the Homeopathic Medical Society, and the other societies, to combine in the formation of such an organization. We might call it the Hospital Reform Association, and work in conjunction with the United Charities, to see that the movement we are contemplating is carried out.

There is one point which perhaps I should not touch on to-night, as it was hardly contemplated to carry these reforms into the hospitals at the present time, but I shall speak of it because I have noticed it so frequently, and that is this: Why are hospitals so anxious to have endowed beds? It is one of the greatest drawing cards a hospital may have to be able to print each year how many days of free treatment they have given patients. I think it was Sir William Thompson who said, "The best way for a hospital to raise money is to be continuously in debt," and I am quite certain that I make no misstatement when I say that every general private hospital, except those hospitals that are run for pecuniary profit, are in debt every year. They have a large debt every year, otherwise there would not be any necessity for the hospital begging money each year, and the larger the list of free patients the greater the excuse for going out and asking people to give them money. I know one hospital that has treated many free patients, and until two years ago it had a deficit each year amounting to from twelve to fifteen thousand dollars. That same hospital has a number of endowed beds. They have one or more endowed beds which have been endowed by one of the wealthiest corporations in Chicago. When any of the employees of that corporation become ill and wish to go to this hospital, all they have to do is to apply to the proper individual of the corporation, and they are sent to that endowed bed. I know some of these employees have been drawing salaries ranging from fifty dollars to sixty dollars a week, and have received free treatment at that hospital. Is that right? (A chorus of voices, "No.") That is a point I wanted to bring up.

The profession should protect itself. I am in perfect accord with the sentiment that we should take care of the poor sick. The medical profession has always stood ready to take care of the sick poor and those who are unable to pay. The profession is ever ready to take care of people who have only slight means. They are willing to give the best of their services, and I do not believe there is a physician here but who is willing to do the best he can for any man whom he believes is honest. (Applause.) But we will turn him down every time if we think he is trying to defraud us. That is right.

Dr. Andrews spoke of the evolution that is taking place in the practice of medicine. Times have changed in the practice of medicine, and I do not believe we can any longer pose before the public as philanthropists, pure and simple. We have to make our living, and the better living we make, the better income we make, the better we can equip ourselves for treating the sick. If we are to be worried or bothered by this, where am I going to get enough to pay my

butcher's bill or grocer's bill to-morrow? we naturally can not give our patients the best services. The laborer is worthy of his hire, and if we give people good service, for goodness sake let us have what is due us. (Applause.)

Dr. William H. Wilder:—There are three classes of poor, the Lord's poor, the devil's poor and the poor devils. It is important that we differentiate them very carefully. What I have to say I want to say from the standpoint of the institutional man, because a good part of my professional life has been spent in clinical and dispensary work, and having had considerable experience in it, and having made some observations, I have arrived at some definite conclusions.

Before touching on one or two points I want to bring up, I wish to consider some of the ideas that were presented by those who read the papers. I quite agree with Dr. Hamilton in almost everything she said, but I wish to take exception to one statement she made that might be construed as aspersion against the profession, and that is in regard to mistakes that members of the profession make in their dispensary work or among poor patients. If blunders are committed because state boards of health or examiners pass incompetent practitioners, it is not the fault of the profession, but rather the fault of society at large. When society demands higher class physicians, society will get them, and not until then. The medical profession is doing all it can to raise the standard of its work, and we are not met half way by society, as those of us know who have engaged in the work of trying to elevate the standards of medical requirements. We go before legislative bodies with the public welfare at heart and are confronted by the criticism that we are doing it for self-interest.

Another point against which I want to protest is that we as physicians owe our services to the public at large to treat the sick poor. That old idea is exploded. We do not owe our services to the public any more than do any other class of citizens. The department stores clothe the poor. Do they reduce the price of fancy headgear or nice wearing apparel in which many of our patients are arrayed when they appear in our clinic room to consult us? Not one cent. It is no more our *duty* to treat gratis the sick poor than it is the duty of any individual to give something for nothing. This is an economic proposition. (Applause.)

With this proposition in mind, let us consider how we go about our work in dispensaries, and what are our motives. In the first place, they are free dispensaries without teaching facilities, and in the second place there are dispensaries conducted as institutions to furnish material for teaching purposes. As Dr. Hamilton has so well stated, it is to be hoped the time will come when all medical charity will be dispensed in dispensaries of the latter class. She gave reasons for that in an excellent way.

When a physician connects himself with a dispensary or any clinic, why does he do it? Is the motive one of charity? Let us disabuse our minds of that. If we analyze our own thoughts we all know well we do not go into a dispensary or clinic with that high altruistic motive that some people would say we did. I am sure we must confess to ourselves that we do not do so. (Applause.) We go in just exactly for the same reason that we do many other things in life, namely, because of self-interest which lies at the bottom of nearly every motive and every deed, and we go in expecting a *quid pro quo*. The individual, in connecting himself with a dispensary or clinic gains skill and experience. He gets acquainted with students, and it matters not whether he goes to a clinic or free dispensary, he expects to get a reputation and something out of it and his ambition is a laudable one. Now, while this work is gratuitous it is not for this reason charitable, so far as the physician is concerned, for his prime motive is really a selfish one, but, if this physician is the right sort of a character, he will throw into his work a lot of charity and good will, which he often does, the opportunities being so abundant.

I am heartily in accord with this movement because I see a great deal of abuse of medical charities. I am connected with a large institution, the Illinois Charitable Eye and Ear Infirmary, where we repeatedly have gross impositions practiced, and it is not an uncommon thing, gentlemen, to have well-to-do pa-

tients come into the institution trying to get free services because they have heard of the reputations of the surgeons in that institution. A confrère of mine operated for cataract on a gentleman from down the state, who was worth sixty thousand dollars, who had managed to get into this institution for free treatment.

It is clear that such impositions as these work a great hardship and injustice to the non-institutional physicians and to the profession at large, and no one should be more willing to try to check the abuse than the dispensary or clinic physician.

Allow me to call your attention to one other point. It is not the institutional physician alone who is to blame for these abuses. Those of us who are working in dispensaries will unite gladly in any effort or movement to stop such imposition. But let us not lose sight of the fact, too, that the non-institutional physician is sometimes to blame, and not infrequently. This thing must have been observed in the experience of every physician engaged in dispensary or clinic work, namely, that some outside or non-institutional physicians will send patients into these institutions to get free treatment or advice who, they know, can afford to pay fees and whom they should send to the consultant or specialist. Only a week ago a man drawing two or three hundred dollars a month was brought into my clinic by a non-institutional physician to get free advice and treatment. Under such circumstances, must not the non-institutional physician accept a certain amount of blame for the abuse of charity in dispensaries?

Dr. R. S. Jones:—Dr. Wilder stated some of the facts as I see them, and to further emphasize one point I wish to state that at the end of sixteen years of dispensary work I am more indebted to my dispensary patients than they are to me. This, I am sure, is equally true of most men in the profession who are occupying hospital and dispensary positions. That our profession has its noble side nobody can deny, but when we make ourselves and the laity believe that we do dispensary and hospital work entirely from altruistic motives we misrepresent the facts. Every honest physician will admit that he does not accept a hospital or dispensary position because of the benefit that he will confer upon his patients but because it is of infinite value to himself personally in many respects. But such selfishness is not to be deprecated; if he does good work he is not the only beneficiary. Hospitals and dispensaries which are conducted for teaching purposes are certainly not pure charities, and it is hoped for the sake of the patients and the students that most of the free medical work will be conducted in the near future for such purposes.

As to the argument that we are pauperizing people right and left by giving them free medical aid, the fact that so few of these patients that come to dispensaries are on the list of other charities shows that it is a fallacy. Indeed, I contend that by giving them free medical aid we frequently keep people from really becoming incapacitated for work. In other words, we keep them from becoming beneficiaries of other charities.

As to the plan to restrict medical charities, the discussion of the subject has certainly been of great benefit to us all. It has made us realize more fully our responsibility to the patient, to each other, and to the public. But I doubt very much that the methods proposed will work. It will be almost impossible to get the right kind of investigators. The problem is far more complicated than it seems at first sight. For instance, take the obstetrical dispensaries. Formerly almost all the poor and a good portion of the middle class of women were taken care of by midwives, with great mortality to mother and child. In the last few years a good deal of this work has been done by the college dispensaries for the purpose of instruction, with great benefit to the patients and infinite value to the students. A great many of those patients are in a position to pay some money, but not a sufficient obstetrical fee to secure a competent physician and nurse. Should we refuse to take care of these women, send them back to midwives and take away the absolutely necessary instruction from the students?

Should you decide to investigate, if it is not to be perfunctory and therefore valueless, many experts will be needed. The charity organizations in question already spend all, and more according to some, of their money for investigations.

You certainly can not get much support from the physicians. As to the general public, you can hardly arouse enthusiasm for large schemes of investigation with the minimum of aid.

Dr. M. Malkin:—The problem that has been presented to-night is a very timely one. I have one thing in view which I wish to present to the Chicago Medical Society, and that is this: At the time I attended a hospital in Berlin I noticed the administration there was conducted in a very business-like manner; that every patient who presented himself for free service or otherwise had to sign an application. This application was brought to the administrator and the administrator saw that the patient was able to pay or not. But there is no such thing as entirely free charitable service in the City Hospital work in Berlin. Each individual has to pay a certain amount of money in accordance with his ability. Some pay only twenty-five cents a month, others fifteen cents a month, but their idea is not to entirely pauperize the community, and in this way, in order to retain good citizenship, they make every individual pay according to his ability.

Dr. Chauncey W. Courtright:—I did not hear the early part of the discussion, but I would like to make a few remarks in connection with what I have heard of the proceedings. Somebody has classed us as "general practitioners" and "the rank and file of the profession," and it seems to be forgotten that we, "the rank and file," are on the firing line of professional work; the ones who are fighting the battle. We do not forget nor neglect our charity work. We do it every year, and we do not get any advertisement from it that we know of. I wonder if it would not be much better to have a greater number of obstetricians among "the rank and file" of the profession than to have one person, who poses as an obstetrician, and has a great many dispensary patients, and acquires such great proficiency (?) and a wide reputation, which pays that individual so very well? It seems to me the "general practitioners" should get the benefit of some of that material and experience, each doing his share, and then we would have a *lot* of obstetricians and other kinds of specialists amongst "the rank and file" of the profession. I doubt if four or five good specialists, in any department of medicine or surgery, in a big city like Chicago, can do all the work and entirely fill the bill, big as they may grow. (Applause.) Now I am going to give you a little of human nature. I was born that way, and when I talk I have to say what I think.

Dr. Wilder has told us how he has seen the well-to-do patient come to the hospital, having been sent there by an outside physician, *for free treatment*. Yes! Certainly! When I have had a patient who was able to pay me a reasonable fee for operation or treatment and he has been drawn away from me by the stronger draught of some well advertised man, some institutional man, whose reputation had grown great because of his institutional connections, and I have lost that patient's business, and I have known the institutional man to collect a big fee, whereas I never got my money for past services; in fact, so much money being paid this great man that there would not be any money for me for treating that patient for two or three years; when such things as *that* occur, I remember them (A voice, "And so would any one," followed by loud applause), and the next time I get such a patient, under like conditions, I remember the institution with which such specialist is concerned, and *send the case to him at that institution* and let him treat the case *for nothing*, as I had to do in the previous case. (Applause.) But *that is one phase* of this great question.

Dr. Charles A. Parker:—I have very little to add to the discussion of this subject. It seems a little trite to say, after all, that we have only two parties interested in this affair, the patient and the doctor. The patient is trying to get all he can for nothing, and the doctor is trying to get all he can.

Dr. Wilder struck the keynote, in my judgment, when he said that no one has any more right to go to a doctor and expect charity service than he has to go to the grocer for groceries and expect the grocer to give them to him free. It seems to me, in going to a dispensary every patient should bring a document showing whether or not he has a right to charity. (Applause.) Of course, when

we get to the other side, the doctor's side, it is a tough proposition, and particularly the doctor in the hospital, and the part he plays there. There must be some way of preventing too much charity in the cases of well-to-do patients in hospitals, and I do not feel able to discuss that phase of the subject.

Dr. H. E. Mock:—I want to say a word or two in regard to the relation of our county institutions to the profession. Not so long ago, when I was an interne at the Cook County Hospital, I had the opportunity there of seeing our best surgeons on the attending staff treat patients who were sent in by this or that county commissioner, or by some other man with political power, free. A number of these patients in the free service were better off in reality financially than the surgeons who operated on them. For instance, one of our great politicians, a man who has recently stepped into a prominent position, had some of his relatives in this institution as patients, and one of the best surgeons operated on one of these. Nurses were furnished to this patient, all of the service being free, and yet the attending staff of the Cook County Hospital stood by and didn't say a word about this. To more or less of a degree they go ahead and allow these abuses of practice to continue.

It seems to me, while our committee is working on this subject of dispensaries, some method should be adopted to cut out this political practice in our county institutions. I bring this up to reinforce the statement brought out in regard to the proper control of dispensaries, because the interne has an opportunity of seeing these abuses practiced upon the profession. (Applause.)

Dr. Wyllys Andrews:—May I say a word, out of turn, apropos of the remarks by the last speaker? The abuse which he mentioned existed in the County Hospital up to about a year ago. We have all seen political influence bring well-to-do people into that institution, who chose their nurses, selected their physicians, and were put in a ward by themselves, taking all other patients out. I am referring now to patients of families that are well-to-do. These people should be made to feel ashamed of their use of political "pull."

Dr. Baum, president of the County Hospital staff, assures me that the president of the County Board has given him positive assurance that no patient shall now be taken care of in the County Hospital who can be shown to have means, and no physician of the staff will be compelled to attend such a case. During the current year a very stringent new requirement for admission was put in force, whereby no physician on the staff can assign a patient to his own or anyone's else service; neither can the Warden assign a case to any one physician on the staff. The anomalous state of affairs which formerly existed is being amended. I hope the next move of our excellent committee will be against the hospital abuse. No doubt public money has been wasted and physicians injured by public as well as private institutions.

Dr. L. Harrison Mettler:—I wish to second very heartily the resolution offered by Dr. Ochsner, and while on my feet to state my own feelings on this subject. The medical profession seems at times to be fearfully afraid of being considered uncharitable if it does not give its services gratis whenever it is asked to do so. As a result, the whole matter of medical charity has become sadly mixed up with a lot of maudlin sentimentality. Now, it is my observation that, class for class of citizens, there is about as much charity manifested in other walks of life as there is in ours. I am speaking of real charity, and say what I do most advisedly. Charity is largely a matter of individual temperament. It is a trait of character in its manifestation. It is not a particular qualification of any profession or calling. A shrewd business man may exhibit a most charitable instinct while a learned clergyman may be anything but genuinely charitable. Though we of the medical profession are fortunate in being able to exhibit our charitable traits by personal service, that does not lessen by comparison the splendid charity exercised by those in other walks of life in the giving of their money, building institutions of learning, and contributing to philanthropic schemes of all sorts. I do not think that we as a profession can claim so great a superiority in this respect. Indeed, I suspect that the world has smiled a bit at us now and then for making too loudly such a claim.

On the other hand, I say we aim far, and are entitled to full compensation for services rendered. Not only are we entitled to compensation for all of our medical services, but there is not one of us who, except in cases of emergency and absolute need wherein charity is provoked, no matter what the calling, does not act up to this belief. As has been said here to-night, we hold clinics, join hospital staffs, not for a money consideration, but for compensation in the way of experience and legitimate advertisement. The community receives benefit, to be sure, from the increase of professional skill, but it can not honestly be said that we as a profession and as individuals receive no benefit other than the exercise of self-sacrificing charity. The laborer is worthy of his hire, and we recognize that our labor in the maintenance of the health of the community deserves compensation of some sort always. We are not under obligation to give gratuitously our capital, our knowledge, our special skill, any more than is any other man in the community to give his capital, knowledge and skill under like conditions.

It is a curious thing that whenever a reform springs up, the trend is always back to common sense, and after the reform has gotten well under way, we all exclaim, "How obvious and simple, why didn't we think of that before." I thought thus after reading the splendid report of our Committee on the Abuse of Medical Charities and its recommendations. It seems to me that, through this committee, we are now doing as a profession what the rest of the community have long ago done, namely, handing over to a specially trained and prepared organization the investigation and distribution of our charity. Just as the laity have given to such bodies as the United Charities its offerings for intelligent distribution, we now propose to call in the aid of this body of trained workers to help us make our charity of real benefit to the needy in the community. We are only a little behind the rest of the world in this respect. Every man is entitled to his just compensation, and through this committee and the United Charities every man will be able to distribute his charity where it is most needed. (Applause.)

FOX RIVER VALLEY MEDICAL ASSOCIATION.

The quarterly meeting of the Fox River Valley Medical Association was held at Elgin, May 11. It began with a clinic at St. Joseph's Hospital at 8 a. m. by Alexander Hugh Ferguson, consisting of a cholecystotomy, a left herniotomy and an amputation of the cervix and perineorrhaphy. On account of the earliness of the hour only a few except resident doctors were able to avail themselves of this privilege, but all were present that could see to advantage. The business session convened at 10:30 a. m., with the vice-president, E. H. Abbott, in the chair. Drs. Annie Spencer and R. S. Bothwell, of Batavia, and Martha Hayward and A. L. Anderson, of Aurora, were elected to membership. A resolution was adopted approving the bill before the legislature for the sterilization of criminals and another deprecating the practice of otherwise reputable druggists publishing their personal guarantee of nostrums and patent medicines. A circular letter from the Fenger Memorial Committee was read and the society instructed the treasurer to send \$25 as its subscription. It was voted to invite the Aux Plaines Branch of the Chicago Medical Society to meet in joint session again at some place to be selected by the committee. At the conclusion of the business session, Alexander Hugh Ferguson, of Chicago, delivered an address on "Empyema," which commanded the closest attention of the members from beginning to end. The society again convened after an intermission of an hour and a half for luncheon and listened to a most interesting paper on "Acidemia in Its Relation to Nervous Diseases," by George F. Butler, of Chicago. Both Dr. Ferguson and Dr. Butler were unanimously given a vote of thanks and made honorary members of the association.

GEO. F. ALLEN, Secretary.

ACIDEMIA IN ITS RELATION TO NERVOUS DISEASES.

GEORGE F. BUTLER, M.D., CHICAGO.

The doctrine of autointoxication is a very old one; the central idea of the primitive conception survives in the term rheumatism, applied to a condition due to the autointoxication resultant on suboxidation. Many of the morbid states now regarded as autotoxemic were of old charged to rheums, as the products of rheumatism. Obesity and allied states were placed in the sixteenth century in the nosologic position they occupy to-day. In Sydenham's time the effects of these conditions were even better recognized than during the middle decades of the nineteenth century. Sydenham pointed out that suppressed gout (that is, gout without joint expression) exercised marked influence on the constitution. The body, he remarks, "is not the only sufferer and the dependent condition of the patient is not his worst misfortune. The mind suffers with the body, and which suffers most is hard to say. So much do mind and reason lose energy as energy is lost by the body, so susceptible and vacillating is the temper, such a trouble is the patient to others as well as himself, that a fit of gout is a fit of bad temper. To fear, anxiety and other passions the gouty patient is a continual victim; whilst as the disease departs the mind regains tranquility."

Autointoxication is a broad term; it manifests itself in various ways, and when we speak of autointoxication we think at once of faulty digestion, hepatic insufficiency, imperfect elimination and defective metabolism.

Probably the most common form of autointoxication is what has recently been termed acidemia, a condition of the body in which there is an accumulation and retention of an abnormal amount of certain acid waste products. The mixed twenty-four hour urine is normally acid in reaction, the acidity being due to certain acid salts, principally diacid-sodium phosphate (NaH_2PO_4), though other acid salts are usually present but in smaller amounts. The urinary acidity, contrary to the general belief, is not due in the least to the presence of uric acid.

The normal degree of acidity of the urine is from 30 to 40. When the degree is below 30 (the difference between the degree indicated and 30 shows the degree retained in the system, provided alkaline fermentation has not taken place), it indicates either renal insufficiency or excessive suboxidation, producing renal strain. In cases in which the degree of acidity exceeds 40 there is excessively imperfect oxidation, which, irrespective of the types of acid, underlies, as is now generally recognized, severe constitutional stress allied to that of diabetic acidosis.

Harrowers says "the index of urinary acidity undoubtedly varies in direct ratio with the metabolic changes going on in the body. The manufacture, as waste products, in the body cells of acid substances—of which sulphuric acid is probably the most important—must have a decided influence on this factor. In addition to this, certain products of intestinal putrefaction, when absorbed into the blood, are eliminated in the urine and thus serve to increase its degree of acidity. . . . The examination of a large number of specimens leads me to believe that high urinary acidity is associated in a majority of cases with low urea output and with other metabolic disturbances, possibly of the uric acid type, but not necessarily so.

"Again, I have found that high urinary acidity and indicanuria quite frequently are associated, and I begin to believe this high acidity is due to the same conditions causing the presence of indican and the conjugate sulphates. At all events, in patients showing excessively acid urine, bacteriological examination of the feces, in a majority of cases, demonstrates a severe infection within the intestines, together with putrefaction of their contents and the inevitably resulting autotoxemia."

There is probably a close association between a high degree of urinary acidity and intestinal autointoxication as shown by the indicanuria almost always present where there is highly acid urine. Moreover, in these conditions we almost invariably find urea elimination very much reduced.

High urinary acidity, indicanuria and low urea-index are very closely related, and have a definite effect, the one upon the other. In the majority of chronic diseases these conditions exist, especially do we find a marked increase in the

number of acid units eliminated per day in tuberculosis, rheumatism, neurasthenia and many other obscure and abnormal conditions associated with auto-intoxication.

But as this paper is written with the intention of showing the relationship between acidemia and nervous diseases, I will enter at once upon this phase of the subject.

An abnormal degree of urinary acidity extending over a period of some weeks accounts for many fits of the "blues," ill-temper and mental and physical depression, arthralgia, myalgia, backache, insomnia, neuritis, headache, etc.

The symptoms of acidemia, or the more grave form acidosis, are often those of profound systemic depression, but they likewise present occasionally convulsive and exciting types. Nearly fifty years ago Meynert suggested that epileptic attacks were due to an unstable nervous system acted upon by the accumulation of proteid toxic substance. This view was subsequently corroborated by the researches of Brieger, Bouchard, Fere and others on the toxic state of the urine antecedent to the epileptic state. All the depressed mental states, whether occurring singly or in compound psychoses, like parietic dementia, cyclothymia, katatonia, etc., are attended by suboxidation, as Meynert long ago showed; hence, as Coriah has lately proved, by acid states, acetone, diaetic and B. oxybutyric acid.

There are two factors to be reckoned with in acidemia, the acquired diathesis and the effects on this of increased toxemia.

Making up what is called consciousness are a number of clear conscious states, accompanied by others less clear and by physiologic states which, though not entering into consciousness, are even more potent than the conscious states. These last would be the first affected by acidemia. The morbid irritations resulting therefrom obtrude on consciousness, producing anxiety and uncertainty. These morbid irritations of physiologic states produce the great conditions ordinarily found as a result of acidemia. The first is what the older clinicians called nervous adynamia and ascribed not only to the essential fevers, etc., but also to autotoxemia.

From these two states, the conscious and the psychologic, the first an irritable weakness, the other a deep seated constitutional neurosis, result the various conditions of temporary or protracted disorder charged to acidemia. The two conditions are predisposing factors of almost distinct value. One type disturbs the balance of health so that it is easily upset and easily recovers. In the deeper type a secondary condition to autotoxemia has been engendered, which, like all conditions influenced in their action by causes secondary to a great primary origin, will not yield to treatment of this primary cause alone. This latter condition, like chronic nutritional disturbances, set up by syphilis, by the exanthemata and by other diseases in which the nervous state or the nutritional disturbance remains long after the primary cause has disappeared, acts as a predisposing neurosis.

All these morbid states and prolonged acidemia produce a protracted neuropathy with suspicious and anxious tendencies. This condition mimics all the chronic neuroses and is often taken for them, whence the frequent cures of conditions like tabes by quack systems and medical pretenders. To a certain extent the period of attack gives a complexion to the clinical picture. A very common type between 25 and 45 is a disorder mimicking locomotor ataxia and often accompanied by convulsive attacks. In such cases even physicians not unnaturally give an erroneous prognosis. Lightning-like pains of locomotor ataxia are simulated by temporary darting pain, partly of psychic origin. As the existing auto-toxic state aggravates any effect of eye strain and even produces these, in certain cases examination of the eyes often reveals conditions mistaken even by ophthalmologists for the preliminary stages of optic atrophy. As the reflexes are often as exaggerated in this condition as they are in the earlier stages of locomotor ataxia, an error in diagnosis is always possible.

The variations in the mental state of this class of cases requires but little to pass over into the confusional types of insanity, which, indeed, were the earliest

directly charged to autointoxication. The more frequent type presented is that of acute confusional insanity. This was the case with those which Schroeder van der Kolk, decades ago, demonstrated to be due to fecal accumulation in the colon. In some cases melancholia is produced. The urine of these has been found to produce stupor and depression in animals. The urine from confusional cases produces stupid excitement and violence. Exceptionally emotional exaltation may occur, producing extravagant actions, thereby creating a suspicion of parietic dementia. A very frequent type produced by railroad travel aggravating autointoxication is a stupid hallucinatory violence, which disappears in a very few days after rest, the use of alkalies, stimulant euemata and hypnotics. This type often occurs in persons of either sex traveling on their honeymoon.

In many cases charged to mental shock acidemia is the dominant cause, which is often due to the inhibitory effect that mental shock has produced on the liver and kidneys, causing the latter to secrete only the clear, pale urine of nervous agitation. The cases of transitory frenzy, with their wild, brief, unremembered violence, charged to mental shocks, are really due to acidemia in the manner already described.

The most common symptoms of this form of nerve-tire are the very ones which lay tradition and dogmatic empiricism attribute to womb ailment. They are in the usual order of their frequency: Great weariness and more or less nervousness and of wakefulness; inability to walk any distance, and a bearing-down feeling; then headache, napeache and backache. Next comes scant, painful, delayed or suppressed menstruation, cold feet, and an irritable bladder, general spinal and pelvic soreness, and pain in one or both ovaries. The woman, always tired, spends the day tired, goes to bed tired and wakes up tired, often, indeed, more so than when she fell asleep. She sighs a great deal, has low spirits, and often fancies that she will lose her mind. Her arms and legs become numb so frequently that she fears paralysis. The skin becomes dry, harsh and scurfy. Pigmentary deposits appear under the eyes, around the nipples, and on the chin and forehead. Blondes get mottled in complexion. Brunettes are disfigured by brown patches or by general bronzing. Sometimes the whole complexion changes to a darker hue, while a disfiguring growth of hair appears on the face. A physician, especially if the patient has backache, bearing-down feeling, an irritable bladder, and pain in the ovaries, is apt to hunt diligently for a uterine lesion. If one be found, no matter how trifling, he will attach to it undue importance and treat it heroically as the erring organ. If no visible or tangible disease of the sexual organs be discoverable, he will lay the blame on the invisible endometrium or on the unseeable ovary and continue the local treatment. In this connection it should be remembered that menstruation to a certain extent is eliminative, and that interference with it causes retention of toxic elements.

Even where the bowels seemingly move freely in constipated individuals elimination is very imperfect. The acid urine of these patients causes, as Spallaci long ago discovered, stupor, asthenia, tremor, tetanoid symptoms and hypothermia, followed by hyperthermia when inoculated in animals. Improvement in elimination removes from the urine the factors producing these conditions. The urine of amenorrhoeic or dysmenorrhoeic women, and obviously suffering from constipation and having seemingly free movements of the bowels, present similar qualities. Mental states in women or nervous men are peculiarly apt to disturb primarily the genitourinary apparatus and secondarily the hepatic and renal. Thus jealousy often evinces itself first in bladder disturbance, later in slight jaundice and symptoms resembling gallstone colic.

These symptoms, according to Lepine, are very frequent in women and in nervous men after emotional disturbances. They are extreme expressions of acidemia due to emotional disturbance. The fact is generally ignored but none the less clinically evident that nerve-tire and acidemia work in a vicious circle. Here the influence of secondary casual factors, as often ignored in etiologic pathology, is evident. This is peculiarly obvious in nervous conditions due to errors of refraction and curable by proper glasses in an early stage. Here the influence

of acidemia in producing the headaches is shown in disappearance of the symptoms under treatment directed against the acidemia alone. In a class of cases the supraorbital headache of eye strain is combined with vertical and suboccipital headache. Here, although considerable astigmatism is present, all the headaches often disappear under treatment for acidemia. The underlying condition has not been removed, and, unless the astigmatism be treated, will soon cause auto-intoxication at the proper etiologic moment, attended with recurrence of the headaches.

The same is true of aural, rhinologic, laryngologic and pharyngeal states. Adenoids in children, for example, bring about constitutional disturbances, producing acidemia through continual strain on the nervous organism. The nose, through its erectile tissue, having nerve relation to the erectile sexual systems, and, through the large extent of the olfactory nerve, may be irritated by the attempts at elimination through mucous membranes. This irritation, by exciting the nerves concerned, unduly increases the nerve-tire of the central nervous system and thereby the acidemia. Pathologic sneezing is often an expression of this, and similar influences play a part in the autotoxemic laryngeal and pharyngeal vertiginous states so frequent in autotoxemias. The irritations of these regions often occasion the undue cardiac stress which expresses itself in pseudoanginas. Pelvic irritations of the female produce in a similar manner severe constitutional states. This is why women with severe pelvic disorder who have become insane recover without other treatment than removal from home surroundings and treatment of the acidemia.

The predisposing causes, however, in these aural, laryngologic, rhinologic, pharyngeal and gynecologic conditions remain to set up recurrences of autotoxemia and its consequence if untreated. Preparations for special procedures often imply treatment of autotoxemia which treatment predisposes remarkably to the benefits effected by operation. Very much of what is charged to reflex causes is really due to strain producing acidemia little by little.

The pure type of autotoxemia which underlies many of the so-called reflex states was recognized by the older clinicians as fecal anemia and treated on eliminative and roborant principles. The milder states resultant on acidemia are generally of local expression like irritable bladder, various neuroses, unilateral headache, and neuralgic irritations about the gums and teeth, together with dermatoses like angioneurotic edema and hives, disordered rhino-laryngologic conditions, local fleeting pains, etc. The severe types may vary from fecal anemia to conditions simulating chlorosis, neurasthenia of the ordinary type and of types mimicking tabes, transitory frenzy, melancholia, acute confusional insanity, stupor, amnesia, emotionally exalted states, and sometimes epileptiform attacks resembling grave hysteria, but accompanied with partial or complete loss of consciousness.

One unpleasant and frequent mental state in otherwise logical autotoxemias is nosophobia, or worry over the possibility of disease. This differs from hypochondria in the fact that the subject does not think he has a particular disease, but fears he may have. The irregular action of his organs resulting from acidemia intrudes on his consciousness and causes a fear or uncertainty as to his actual state. That parietic dementia and tabes are often due to the toxin of syphilis is now generally admitted. The clinical history of some cases would indicate that acidemia has here played its part more especially, as it has been demonstrated beyond cavil that temporary autotoxemic neuroses mimic these two great constitutional disorders. The fact is but too often forgotten that the law of periodicity of the nervous system fixes a tendency of certain symptoms to recur from a slighter exciting cause. Hence, frequently recurring acidemia causes that breakdown of the vasomotor balance which constitutes the underlying basis of tabes and parietic dementia.

Owing to the tendency of the neuroses with an underlying vasomotor factor to remit or assume temporary appearances of health, the distinction between the deep forms of acidemia and these neuroses becomes at times difficult. This difficulty is intensified by the fact that acidemia, in a hereditary defective or ac-

quired neuropathic constitution, may cause marked and decided symptoms of less augury than when found in a healthy constitution. Acidemia occurring in puberty often temporarily initiates seemingly serious puberty neuroses and psychoses.

The same is true of the climacteric end of the senile period. In all these cases the condition produced by acidemia has the clinical tinge of the period in which it appears. This is why treatment directed to a change of environment and the habits of the individual so often produces favorable effects on seeming senile and climacteric breakdown.

The grave autointoxication resembling tabes and allied conditions are differentiated, as a rule, by the state of the reflexes as to absence of stupor, melancholia and acute confusional insanity, as well as amnesia, and differ little from the ordinary types except in their comparative quickness of response to treatment. This, however, is only a relative test, since in no case of these affections is autointoxication absent as an etiologic factor. The convulsive types of autointoxication differ from epilepsy in their infrequency and absence of recurrence. Practically the status of the autointoxicated is as brief as that of the epileptic is prolonged.

One phase of acidemia which has received less attention than it deserves is the pseudoangina which so frequently occurs. Sometimes, albeit very rarely, death has occurred from this. This condition is due to the primarily increased inhibition of the heart, succeeded by increased power of the excitomotor ganglia of the heart with resultant irregular action. From this often result the emotional exaltation, depression and suspicious states found in autointoxication of brain and heart. It is readily comprehensible how these irregularities tend to increase each other. Independently of the condition just described, cardiac irregularities occur in acidemia from arterial tension due to the character of the blood. Inevitable renal and hepatic disturbances occur, whence the temporary albuminuria and glycosuria.

The phenomena of arthritis deformans bear a marked resemblance to the trophic changes of tabes, and it is by no means improbable that they are sometimes due to the two states produced by autointoxication. The chronic type has so deranged the trophic mechanism that irritation changes result from the products of autointoxication. The influence of these factors can be shown experimentally by section of the sciatic nerve in rabbits and the injection of irritating material above the center of the body. As a result the side of the sciatic nerve section is attacked by arthritic changes like those of arthritis deformans.

I dislike to close any medical paper without referring to the treatment of the disease under consideration, for, while diagnosis is essential, the ultimate aim of the physician, after all, is the relief or cure of disease.

The therapeutics of acidemic autointoxication will depend on the type. In irritable weakness, while removal from surroundings is desirable for permanent recovery, much may be attained by regulation of diet, proper alkalies, alkaline mineral waters, regular moderate exercise and massage, as well as hydrotherapy. Here, as in all cases of acidemia, the great need of the system is water, and it should be amply supplied, whether in the form of mineral waters or ordinary water, or large quantities of milk. Purgatives require very careful adjustment: both aloetic and the cascara purgatives tend to produce congestion of the hemorrhoidal veins with resultant irritation. Saline laxatives are the best, although in old people they must be used cautiously. In no small number of cases of irritable weakness a small dose of a mercurial followed by a morning saline acts rapidly and very beneficially in securing elimination, which is what is needed, not simple purgation. In the deeper type, removal from home surroundings and conditions is imperatively indicated. In addition to dietetics, of which I will speak in a moment, hydrotherapy, elimination and exercise, faradism and franklinization along the spine are often found necessary and valuable. The indication in this type for the use of water is no less imperative than in the first type. The patient, however, has an intense repugnance to water, as a rule, and to secure its use the physician will need much ingenuity.

The acidity of the urine must be reduced to normal, *i. e.*, 30 to 40 degrees. This is best accomplished by giving thirty to sixty grains of sodium bicarbonate in three-fourths of a glass of water about two hours after eating, say middle forenoon, middle afternoon, and at bedtime. To bring the acidity of the urine down to normal will require from one to four weeks, in some cases even longer. If there is much intestinal decomposition as shown by the presence of indican in the urine, intestinal antiseptics, preferably the sulphocarbolates, are indicated.

A prescription which I have used with great success, suggested by Dr. Eugene S. Talbot, the celebrated dentist and stomatologist, of Chicago, who has done more work along this line than any one else I know of, contains to each dram, 20 grains of sodium bicarbonate, 5 grains sodium sulphate, $2\frac{1}{2}$ grains sodium sulphocarbolate; colchicine, gr. $1/500$; juglandin, gr. $1/6$; xanthoxylin, gr. $1/6$, with cinnamon and other aromatics. This formula is now marketed by the Abbott Alkaloidal Company under the trade name of Sodoxylin.

This prescription is an excellent combination of alkalies, intestinal antiseptics, salines and hepatic stimulants. Of this one-half to one teaspoonful is given in a glass of water two or three hours after eating.

As to diet. There are two factors to be considered, *viz.*, the quantity and the kind of food eaten. The proteids should be greatly reduced, and while each case may have to be treated differently as regards diet, there are a few general rules which are applicable to almost every case. Meats should be replaced by chicken, fish and vegetables. In some cases, those where the acidity is due to sugar fermentation, starchy foods and sugars should not be partaken of. In other cases fruit, both cooked and uncooked, should not be used. It is well to be sparing in the use of water with meals, but plenty of water should be drunk between meals. Coarse foods and not too much at a time must be eaten with sufficient time to masticate and thoroughly insalivate them before swallowing.

NEWS OF THE STATE

PERSONAL.

Dr. Hugo Franz has sailed for Europe.

Dr. R. E. Watkins has located at Polo.

Dr. and Mrs. John Ridlon are at Newport.

Dr. Alfred D. Kohn has returned from Europe.

Dr. S. Ida Wright Rogers and son Lyman, of Chicago, have gone to the Pacific coast.

Dr. Frank Billings and Miss Billings, Chicago, have returned from an extended European trip.

Dr. F. H. Langhorst and wife of Chicago will leave shortly for Europe to be gone one year.

Dr. J. R. Sholl has been appointed health commissioner of Peoria, vice Dr. Albert Weil, resigned.

Dr. Joseph P. Smyth has been re-elected high medical examiner of the Catholic Order of Foresters.

Dr. Arthur D. West, Moline, underwent an operation for appendicitis, July 19, at the city hospital.

Dr. R. T. Hinton has succeeded Elmer L. Crouch, resigned, on the staff of the Jacksonville Hospital for the Insane.

Dr. T. W. Bath, Bloomington, has been elected surgeon of the Department of Illinois, United Spanish War Veterans.

Dr. W. R. Shinn, of Chenoa, has sold his practice to Dr. Du Four, of Oquawka, and will make an extended trip through the West.

Dr. J. B. Herrick gave an address at the University of Chicago August 16 in the Oliver Wendell Holmes centenary celebration.

Dr. Harry C. Blankmeyer has been appointed pathologist and Dr. Morris Altman obstetrician on the staff of the Springfield Hospital.

Dr. E. R. Walters, health commissioner, with other officials of Pittsburg, made a trip of inspection of the small parks of Chicago recently.

Dr. and Mrs. William Senn, Dr. and Mrs. George N. Fiske, Dr. C. H. McKenna and Dr. and Mrs. Arthur R. Elliott have sailed for Europe.

Dr. James A. Nolen has succeeded Dr. Frank Fitzgerald, resigned, as local surgeon of Chicago & Northwestern Railway Company at Morristown.

Dr. Edward W. Stubbs, Aurora, physician of Kane County, was slightly injured and his carriage destroyed in a runaway accident in Aurora, July 19.

Dr. and Mrs. Lewis L. McArthur, Dr. and Mrs. Cassius C. Rogers, and Drs. Harriet C. B. Alexander, E. Fletcher Ingals and George Shambaugh have sailed for Europe.

Dr. Charles F. Barstow, Freeport, accused of having performed an illegal operation which caused the death of Miss Janette Reider, was declared not guilty by the jury.

Dr. J. L. Greene, superintendent of the Kankakee Hospital for the Insane, has been appointed the alienist member of the board of administration for the state institutions.

A Fort Wayne (Ind.) paper announces that Dr. Frank Wise Goodell of Effingham, Ill., had reached that city beginning a tour of 20,000 miles to take in all the important states, territories and cities of the United States and Mexico.

Dr. P. W. Ransom, Rockford, who was sued by the *Journal of Nervous and Mental Diseases* to recover \$125, alleged to be due on an advertising contract, is said to have won his suit, as the testimony showed that he had ordered the advertisement taken out of the journal.

NEWS ITEMS.

A donation of \$5,000 has been made by the Illinois Steel Company to the South Chicago Hospital, to be applied toward the payment of the indebtedness.

Dr. M. A. Bingley was recently the victim of strong-arm men while boarding a street car near the Polk Street depot. The robbers made off with a \$150 diamond stud.

Dr. J. C. West, of 936 North Halsted Street, Chicago, said to be a lecturer at Rush Medical College, was recently held to the grand jury of Cook County on a serious charge.

Dr. G. E. Tucker, of Mt. Vernon, Ill., while mentally deranged, wandered over the south part of Illinois for six weeks, eluding a searching party of a hundred men and subsisting on berries and fish.

Dr. H. M. Bascum, for many years a practitioner at Ottawa, has been appointed chief surgeon of the Hospital Association of the Illinois Traction System. Dr. Bascum will have his headquarters in Peoria.

Dr. Edwin a Weimer, Pekin, charged with sending an improper letter through the United States mails, plead guilty and is said to have been fined \$100 and costs in the United States District Court July 21.

Dr. H. A. Pattison of Benld, Macoupin County, Secretary of the County Society, has sold his property and practice to Dr. H. B. Beson of Paxton. Dr. Pattison will spend a year in Chicago in postgraduate work.

The board of directors of the Norwegian Lutheran Deaconess' Home at a meeting July 13 completed the arrangements for a new \$75,000 hospital to be built adjoining the old home at Haddon avenue and Leavitt street.

Parents of a baby found on the doorstep of Dr. W. Austin Code, 749 Warren avenue, Chicago, called to claim the child recently after the doctor had decided to adopt it. No record is had of the name or address of the parents.

Construction work has been begun on the new addition to Wesley Hospital, which is to cost \$125,000 and to accommodate about 180 additional patients. The new wing will be ready for occupancy about February next.

The Galesburg hospital board has appointed the following physicians on the staff for the coming year: Drs. J. F. Percy, William O. R. Bradley, William H. Maley, R. C. Matheny, E. N. Nash, D. M. Rice, C. G. Johnson, G. H. Bower, J. H. Bryant, and C. B. Ripley.

Dr. Robert C. Hamilton, of 176 Sedgwick Street, and Mrs. E. S. Schaver, of 46 Oak Street, Chicago, also said to be a graduate physician, were recently arrested upon complaint of the coroner of Cook County on the charge of performing an illegal operation.

Pat Crowe, ex-kidnaper and more recently evangelist, has organized the American Sanitarium Company with a capital of \$100,000 to build an institution at Highwood for the care of drunkards and drug habitués. Highwood formerly furnished plenty of subjects for the cure.

At a meeting of the Galesburg Hospital board July 9 the following medical staff was appointed: Drs. J. F. Percy, William O'R. Bradley, William H. Maley, Ralph C. Matheny, Edwin N. Nash, Delia M. Rice, Carl G. Johnson, George S. Bower, John H. Bryant and Clarence B. Ripley.

The addresses of Chicago subscribers to THE JOURNAL have been corrected to correspond with the new house numbers as furnished by R. R. Donnelly & Sons, publishers of the Lakeside Directory, through the courtesy of the American Medical Association. If any mistakes are found, subscribers are requested to send their correct addresses to the Assistant Editor at 4603 Evanston Avenue.

A young scion of a wealthy Chicago family was recently overcome by heat while golfing at a Wisconsin summer resort. The newspapers stated that the family physician was rushed to the scene on a special train, but *mirabile dictu*, failed to mention the physician's name. Does he deserve sympathy or congratulations?

On August 3 the first outdoor school for tuberculous children was opened on the grounds of the Harvard school, West Seventy-Fifth street and Vincennes road, under the joint management of the Board of Education and the Chicago Tuberculosis Institute. The school at first will have thirty pupils, selected from children attending the public school who are found physically subnormal or predisposed to tuberculosis.

By the will of the late Augusta Mannheimer, widow of Dr. M. Mannheimer, \$10,000 is bequeathed to the United Hebrew Charities for the benefit of the Michael Reese Hospital, with the suggestion that a contagious ward for children be maintained; \$2,500 is bequeathed to the

Alexian Brothers' Hospital, and all Dr. Mannheimer's medical books are given to Rush Medical College, together with a bequest of \$5,000 for the establishment of a library to be named after the testator's husband.

Free medical examination of applicants for civil service positions in Springfield does not appeal either to Dr. Palmer, the superintendent of the board of health, or to Mayor Schnepf. The commissioners believe that that section of the civil service law which states examinations shall be "free and open" means that no fee shall be charged for physical examination. The mayor differs, however, in his interpretation of the act, and holds that "free and open" simply means that everybody properly qualified shall have equal right to take examinations.

Chicago is always blowing its horn as the great summer resort, but now comes Dr. Kreider and claims that Springfield is the only genuine health resort within a thousand miles and has all others distanced in the race. The only damaging admission he makes is: "It is true that for a few days in the summer there is considerable heat and humidity." The following is the summary of a lecture delivered before the members of the Chamber of Commerce on "Springfield as a Health Resort," as reported in the *State Register*, July 23, 1909:

"Altogether, Springfield, which will soon be the central point of civilized America, offers to its dwellers every advantage possessed by any other community within a thousand miles and many advantages from a health point possessed by no other city in any clime in any country. We can, therefore, proclaim to the world that our city is the health resort of all others, and can with good conscience invite intelligent people of every clime and nationality to make their homes with us."

Dr. Kreider brought out the many advantages of the city, as its freedom from contagion, a city of good homes, well heated and lighted; of healthful water supply; excellent pleasure parks, miles of good pavement; a city of modern buildings, and ample fire protection.

The Appellate Court in June reversed a judgment in the Circuit Court awarding \$100,000 to Dr. L. C. H. E. Zeigler against the estate of Mrs. Harriet G. McVicker, widow of J. H. McVicker, a pioneer in the theatrical business in Chicago. Presiding Justice Holdom read the opinion, which held that the contract providing for the payment of the money at Mrs. McVicker's death was contrary to public policy and therefore void.

Dr. Zeigler is an osteopath and met Mrs. McVicker when she was 79 years old.

After defining "wagering contracts" the court said:

"We do not think the contract here is so akin to the cases of insurance referred to as comes within the designation of a wagering contract. Enforcement of the contract depends on whether it is void as being against public policy."

The court says there is no evidence that Dr. Zeigler betrayed the confidence reposed in him or that he did not do everything to prolong her life.

"But," the opinion continues, "whatever may have been his course of conduct toward her, Zeigler's rights must be admeasured in harmony with the obligations and duties which the law exacts of persons, bearing the relationship of doctor and patient, in their dealings with each other. A fiduciary and confidential relationship between Zeigler and Mrs. McVicker, is clearly established.

"We find a contract to furnish medical services by a young osteopath practitioner, only recently graduated, whose usual and customary charge was \$2 per treatment, to an octogenarian woman in feeble health, as long as she might live, at the extravagant remuneration of \$100,000.

"The policy of the law is not to sanction the putting of a party in a position where he is subject to the temptation to do wrong in serving his own interests, which, as in the case at bar, is to hasten death rather than to prolong life. It can not be gainsaid but that the early demise of Mrs. McVicker was to the financial interest of Zeigler, for on the happening of that event, if the contract should be upheld, he would be entitled to receive from her estate the sum of \$100,000."

PUBLIC HEALTH.

At a meeting of the Illinois State Board of Health April 14 the National Medical University is said again to have been voted a college not in good standing.

Dr. Robert J. Burns, former health commissioner of Freeport, has been elected county physician on a bid of \$240 for the year. Dr. White received \$450 for the work last year, but did not submit a bid this year.

The Chicago Tuberculosis Institute has opened its eighth free dispensary. The new station is connected with Gad's Hill Center, located at Robey and West Twentieth Streets. For the present it will be open from 10 to 12 Wednesdays and Saturdays.

Harvard University has secured Dr. Milton J. Rosenau, now director of the Hygienic Laboratory of the United States Public Health and Marine-Hospital Service, as head of the new department and professor of hygiene and preventive medicine.

The Great Northern Road is said to have placed vacuum cleaners on its through Pullman cars on account of the number of travelers with pulmonary trouble. Cleaning by the vacuum process without raising any dust will be a great improvement, besides allowing the cars to be kept clean en route.

The emergency ward of the Blessing Hospital in Quincy is said to have received the most favorable attention and comment from the members of the State Medical Society during the recent meeting. It occupies a building erected last year and provides accommodations for two contagious diseases.

Capt. J. T. Siler, assistant surgeon in the United States army, and Dr. Lavender, assistant surgeon in the United States Public Health and Marine-Hospital Service, have been detailed to make an exhaustive study of pellagra at the Illinois General Insane Asylum, in South Bartonville. It is said that 50 of the 2,000 insane patients are afflicted with this disease.

Dr. Albert N. Mueller, health commissioner of Rock Island, has inaugurated a vigorous campaign for sanitary improvement of that city. The health department is to take over the superintendence of the collection of garbage and of the work of the plumbing inspector. Special investigations of cases of typhoid and tuberculosis are made, and maps are used to indicate the location of the cases.

The health department has appointed the following ten physicians to cooperate with the United Charities and Infants' Welfare Committee in their endeavor to reduce the infant mortality list of the summer: Drs. Caroline Hedger, Anna Dwyer, Katherine B. Rich, Johanna Tow, T. Grant Allen, Harold Diefenderfer, M. A. Bernstein, Samuel Perlstein, Samuel Kalaginski and Henry Steible. Five big tents where ailing babies may be cared for have been placed in various parts of the city in crowded districts.

Dr. Davy, in his presidential address to the British Medical Association, said: "My predecessor told me that fifty years ago his average income from attendance on cases of typhoid was £300 (\$1,500) a year. For the past few years my income from that source has hardly averaged five guineas." This statement, as bearing on the decreasing income of English physicians, is being used in a circular by a branch of the British Medical Association to discourage young men from entering the overcrowded profession.

It is said that the Chicago Garment Manufacturers' Association, on the suggestion of its president, Mr. Sol H. Shoninger, is considering the feasibility of the construction of a model group of manufactories, covering perhaps forty acres, where working conditions will be the best possible and the surroundings beautiful as well as healthful. Much has been accomplished by Mr. Davies, the state factory inspector, to curb the evils of so-called sweat-shop labor, but there is no doubt room for vast and urgently needed improvement in the conditions surrounding the manufacture of clothing.

A circular letter recently addressed to more than a score of the leading medical colleges in the United States requesting information about the course of study offered in state medicine revealed a sad lack of uniformity in the treatment of the subject. Several college secretaries even declared their ignorance of the subject. A few others have very complete instruction assigned to the chair of hygiene or of medical jurisprudence. Among the notable recent appointments to chairs in this specialty may be mentioned Dr. Charles J. Whalen, assistant professor of medicine in Rush, former commissioner of health of Chicago, who will lecture on state medicine beginning with the fall term.

The Provident Savings Life Assurance Society of New York has established a bureau to guard the health of its policy holders by means of health bulletins and free medical examinations every two years for those who desire the examination. No medical treatment is contemplated by the company, but an effort will be made to discover the occur-

rence of disease early so that treatment by the family physician may be effective. That the insurance companies', as well as the policy holders', interests can be promoted by the diffusion of sanitary knowledge is thus recognized and endorsed by official action. The Metropolitan Life Insurance Company has recognized the same truth in its campaign against tuberculosis.

The Bulletin of the Department of Health of Chicago, beginning July 31, has been publishing the results of the bacterial count of samples of raw and pasteurized milk as obtained by the inspectors from various sources, together with a study of the infant and typhoid mortality from the standpoint of raw and pasteurized milk. The bacterial count has been found running from six to thirteen times as high in raw as in pasteurized milk. July had the lowest death rate ever recorded for that month in Chicago and the fourth lowest for any month in fifty years, 11.62 per 1,000. The deaths of infants under one year of age was only 423, as compared with 662 in July, 1908. The department has published the following spot maps, showing the location of cases and deaths, together with texts giving advice on infant feeding, sanitation, etc., and has distributed them among the clergy, settlement workers and others who can use them in welfare work:

1. What Kills the Babies?—Diagram.
2. Where the Babies Die—Map of deaths under 1 year, August, 1908.
3. Where the Babies Die from Diarrheal Diseases—Map of August, 1908.
4. Diphtheria in Chicago—Map of December, 1908.
5. Scarlet Fever in Chicago—Map of November, 1908.
6. Typhoid in Chicago—Map of October, 1908.
7. Consumption in Chicago—Map of Library, 1909.

MEDICAL SOCIETY NOTE.

The Stephenson County Medical Society held its annual meeting at Freeport July 8. Dr. G. E. Mershon, of Mount Carroll, gave an address on "The Practice of Medicine from a Business Viewpoint." The annual election of officers resulted as follows: President, Dr. A. E. Smith; vice-president, Dr. B. Erp Brokhausen; treasurer, Dr. D. C. L. Mease; secretary, Dr. J. Sheldon Clark; member of board of censors, Dr. Allen Salter; delegate to state meeting, Dr. B. A. Arnold; alternate, Dr. W. A. Hutchins.

NEW INCORPORATION.

Dr. Boyd & Co., Chicago; capital, \$2,400; manufacturers and dealers in drugs and medicine; B. Y. Boyd, H. W. Baskette, W. B. Sim.

REMOVAL.

Dr. Loren Orr, of Hull, has bought the practice of Dr. W. S. Taylor and removed to Tallula.

MARRIAGES.

FRANK TALIAFORD, M.D., Mazon, Ill., to Miss Dora Orinda Bennett, of Carlisle, Ohio, at Chicago, July 21.

THOMAS POLLOCK RANNEY, M.D., Chicago, to Miss Bertha Kuehn of Eleveth, Minn., at Duluth, June 26.

DEATHS.

GEORGE T. CARPENTER, M.D., Rush Medical College, Chicago, 1880; of Chicago; died at Buchanan, Mich., July 20, aged 61.

JAMES MCRUERK, M.D., McDowell Medical College, St. Louis, 1852; died at his home in Willisville, Ill., from senile debility, aged 84 years.

SARA L. VALENTINE, M.D., Hahnemann Medical College, Chicago, 1887; died at her home in Chicago, July 25, from chronic nephritis, aged 66.

YEWELL DALTON SCALES, M.D., of Springfield, Ill.; died in St. John's Hospital, Springfield, July 21, from cerebral hemorrhage, aged 65.

GEORGE W. BRIGGS, M.D., College of Physicians and Surgeons, Keokuk, Iowa, 1876; formerly of Chapin, Ill.; died at his home near St. James, Mo., July 25, from nephritis.

W. THURMAN, M.D., of Detroit, Pike County, Illinois, died Aug. 1, 1909, aged 55. Dr. Thurman had resided in Detroit one year, practicing previous to that time in Grafton.

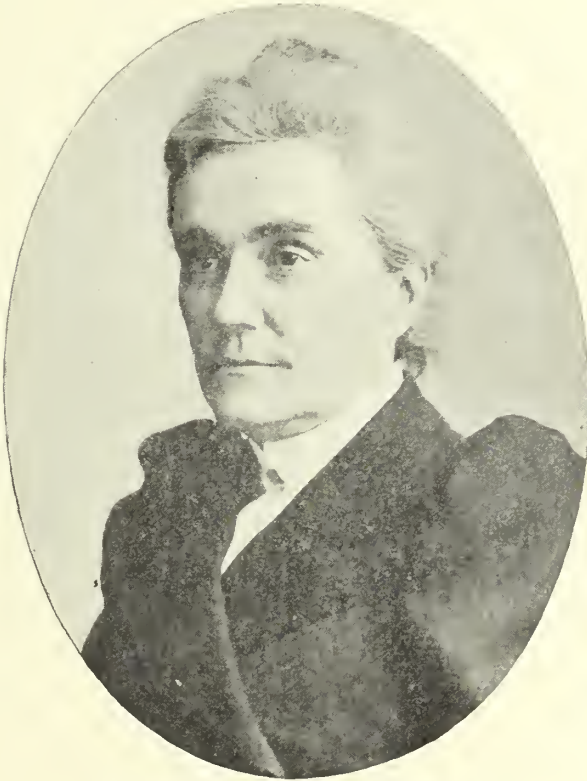
JOHN W. MILLER, M.D., American Medical College (Eclectic), St. Louis, 1887; (license, Ill.; years of practice, 1888); of Madison, Ill.; died in Edwardsville recently, aged 71.

ROBERT MASTERS WILSON, M.D., Long Island College Hospital, Brooklyn, N. Y., 1873; of Lincoln, Ill.; died at St. Clara's Hospital of that place, July 27, from cholelithiasis, aged 52.

JULIUS NELSON FRASER, M.D., Laval University, Montreal, 1874; of Kankakee, Ill.; died at the West Side Hospital, Chicago, July 27, from tuberculosis, after a surgical operation, aged 67.

A. G. KINKEAD, M.D. (license, Illinois, years of practice, 1878), who had practiced for fifty years in Green and Macoupin Counties and twenty-five years at Greenfield, died in that city July 23. Dr. Kinkead was a surgeon at Camp Butler during the war.

SARAH HACKETT STEVENSON, M.D. Northwestern University Medical School, Chicago, 1874; a member of the American Medical Association till her enforced retirement through illness; died at St. Elizabeth's Hospital, from paralysis, after an illness of three years, August 14, aged 64. Dr. Stevenson was a member of the Chicago Woman's Club and the



SARAH HACKETT STEVENSON, M.D.

(COURTESY OF THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.)

Twentieth Century and Fortnightly clubs. She had been a member of the Illinois State Board of Health; professor of obstetrics at the Woman's Medical College; attending gynecologist to Cook County Hospital, and was on the attending staffs of the Mary Thompson, Frances Willard and Maternity hospitals.

MRS. LIZZIE E. MARSEY, wife of Dr. M. S. Marsey of Peoria, died July 12, 1909, after a brief illness, from paralysis, aged 53 years. The remains were taken to her old home at Cape May, N. J., for interment.

ROBERT J. CHRISTIE, M.D., University of Pennsylvania, Philadelphia, 1856, a member of the Illinois Medical Society; formerly dean and professor of medicine in the Chaddock School of Medicine, Quincy, Ill., died at his home in Quincy, July 27, from cholelithiasis, aged 78.

ROBERT LUMLEY, M.D. Rush Medical College, Chicago, 1895; a member of the Illinois State Medical Society; secretary of the Iroquois-Ford Medical Society; secretary of the Board of Health of Watseka, and state examiner for the blind; died suddenly from heart disease, in Watseka, July 13, aged 47.

JACOB MOYER HAGEY, M.D., Rush Medical College, Chicago, 1862; for many years a member of the American Medical Association; once president of the Livingston County (Ill.) Medical Society; a member of the American Public Health Association; died at his home in Mount Morris, N. Y., August 3, from cerebral hemorrhage, aged 76.

VICTOR J. BACCUS, M.D., Northwestern University Medical School, Chicago, 1898; a member of the American Medical Association; professor of gynecology in Reliance Medical College; formerly professor of surgery and head of the surgical department of the American College of Medicine and Surgery; surgeon to Frances Willard Hospital; died at the Polyclinic Hospital, Chicago, August 10, after a long illness, aged 38.

ROBERT M. WILSON, M.D. Long Island College Hospital, 1873; a practitioner of Lincoln, Ill., for thirty-five years; died July 27 of cholelithiasis after an illness of twenty-four hours. Dr. Wilson was born in Morgan County, Illinois, entered the army at the age of 15 years as a drummer-boy, studied medicine and graduated at Ann Arbor, and took special courses at Rush and Long Island College of Medicine. Dr. Wilson had a long and honorable career in Lincoln and was connected with the City Physicians' Club, the Brainard District and Illinois State Medical Societies.

ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF
THE ILLINOIS STATE MEDICAL SOCIETY

ENTERED IN THE SPRINGFIELD POSTOFFICE AS SECOND-CLASS MAT TER.

VOL. XVI SPRINGFIELD, ILL., OCTOBER, 1909 No. 4

ORIGINAL ARTICLES

DIAGNOSTIC AIDS IN DISEASES OF THE LUNG AND PLEURA.*

[The enclosed stereoscopic photographs can be viewed through an ordinary hand
stereoscope.—Ed.]

EMIL G. BECK, M.D.

Surgeon to the North Chicago Hospital
CHICAGO.

(Two stereoscopic cards for illustration.)

We all agree that in the early diagnosis of many diseases lies the prospect of their cure. Cancer and tuberculosis head the list of maladies which are too often permitted to steal a march on us and to become utterly hopeless before their true and dangerous nature is recognized.

Whether the patient himself or his doctor be to blame I shall not discuss any further than to state that the fault does not lie altogether in our diagnostic ability or faulty methods.

The diligent and progressive workers in the therapy of diseases of the chest have made strenuous efforts to devise means by which pulmonary tuberculosis may be recognized in its incipient stage and have added many valuable aids to the older, approved methods of examination. The tuberculin test, for instance, by either the cutaneous, subcutaneous or conjunctival methods, has recently become a very popular adjunct, and is regarded by many the deciding factor in doubtful cases. Its reliability is at present an animated topic of discussion in the medical world, and its value as a diagnostic agent will soon be determined by those who test it in thousands of cases.

I desire to call your attention to another diagnostic aid, the real worth of which is, I believe, not fully appreciated. I refer to the "Radiograph of the Chest."

* Read at the Fifty-Ninth Annual Session of the Illinois State Medical Society, Quincy, May 19, 1909.

While the literature of this diagnostic aid dates back as far as 1896 (Bouchard¹), and important contributions from reliable sources are accumulating—Rieder,² Krause,³ Holding,⁴ Holland⁵—there still exists a lack of interest in this valuable adjunct.

This tardiness may be attributed to two causes—namely, the lack of facilities for the average physician in obtaining good radiographs, and then the expense connected with the procedure. Both, of course, are obstacles and a check to their general use, but what have cost and inconvenience to do with scientific facts? The truth remains that good radiographs demonstrate disease processes in the thorax.

I shall here exhibit a number of radiographs of tubercular chests which will convince you of their value as diagnostic aids.

The skiagraph is an accurate record of the presence and location of lesions within the chest. Its interpretation is submitted for examination to the acutest of our senses, the sense of sight. The eye can not be so easily deceived as the sense of touch or hearing. "Seeing is believing" is an old proverb, and may be applied in the examination of the *x*-ray plate.

First of all, I wish to demonstrate that tubercular diseases, even in the early stages, may be shown by means of stereoradiographs.

We have taken a large series of radiographs of chests of persons in all stages of tuberculosis, including the incipient stage, where neither the physical signs nor sputum examination proved its existence, and our findings and lesions therefrom are here reported.

It is preferable to use the fluoroscope before taking the radiograph, because it shows dynamic conditions, while the plate shows only static conditions.

By the use of the screen one may watch the excursions of the diaphragm and the beating of the heart, and it is possible to examine the chest at different angles. In the radiograph we have, however, the advantage of obtaining a permanent record, with perfect details of structure, and the procedure of taking it does not expose the operator nor the patient to the *x*-rays like that of fluoroscopy.

The difficulty we first encountered was that of differentiating the shadows of an active tubercular lesion from the scar shadows of a healed-out old tubercular process.

Mottled spots are found in radiographs of chests of perfectly healthy persons, even when a disease of the lung is not suspected. To a novice this fact, of course, must be confusing. How is he to judge from a radiograph whether a man has tubercular disease of the lung, when nearly all chest radiographs show some spotted shadows? The interpretation of

1. Bouchard: *Gaz. des Hosp.*, 1896, p. 147.

2. Rieder: *Zur Frühdiagnose der Lungentuberculose mit Hilfe der Roentgenstrahlen. Beitr. z. Klinik d. Tuberculose* Bd. xii, p. 195.

3. Krause: *Jour. Amer. Science*, March, 1909.

4. Holding: *The diagnosis of incipient tuberculosis by the Roentgen Rays. New York State Med. Jour.*, May, 1908.

5. Holland: *Diagnosis of Pulmonary Tuberculosis by means of the x-rays. Liverpool Medico Chir. Jour.*, July, 1908.

these mottled spots has been a subject of my investigation, and I should like to make this point clear.

Some authors have already mentioned that the posttubercular scar, the latent process, gives a clearer outline of shadows than the active tubercular lesion, but, since the clearness of a shadow is dependent upon the distance of the lesion from the sensitive photo-plate, one can readily see how deceptive this argument must be. A fibrous deposit on the anterior surface of the lung will give a spread and indistinct shadow, while the same size of scar on the posterior surface of the lung will give a clear and distinct outline on the plate, providing both pictures are taken with the plate at the back.

Furthermore, the overlapping shadows of solid organs, as the liver and heart, will obscure from our view the weaker shadows of the tubercular lesion.

To overcome this drawback I have taken "*stereoscopic radiographs*" of active tubercular chests (Fig. 1), and for comparison the chests of persons in posttubercular states (Fig. 2), where the physical signs were negative. The plastic effect of structure brought out by means of this procedure demonstrates the real conditions so vividly that the two conditions may be readily differentiated. We may even distinguish the remains of healed tubercular lesions from an active one in the same lung. The distinctive feature of the active and posttubercular state is this: The active process shows the foci of infection in roundish shadows surrounded by a halo, which merge into other similar foci. The halo no doubt represents the area of infiltration around the deeper shadow, the tubercular process itself.

The healed-out posttubercular scars, however, stand out clearly, like spiders, surrounded by translucent lung tissue.

It requires a stereo-radiograph to bring out the contrast very clearly; the single (non-stereoscopic) plate is, on account of the flatness of the picture and the overlapping of shadows of heart and bones, not efficient. A study of a large number of these radiographs, by comparing them with the physical signs of the patient, will soon convince even the skeptical of its real advance in the diagnosis of tubercular diseases of the chest.

The technic of taking stereoradiographs is not complicated, and, on account of its distinct advantage, recommended in deciding the diagnosis in doubtful cases.

Another condition in which the stereographs are of advantage is in the differentiation of a pleuritic effusion from a lung abscess.

Pulmonary abscess usually follows pneumonia, aspiration of foreign bodies, rupture of lung or infarct and sometimes follows abscesses in neighboring organs. Pleuritic effusions, on the other hand, are either associated with or follow inflammatory conditions of lung or pleura, or they may be due to purely mechanical obstruction to the circulation, associated with valvular disease. The effusion of a serofibrinous exudate is most frequently due to tubercular disease of the lung, so that we must look for other symptoms of tuberculosis in such cases.

The studies of Brauer,⁶ Murphy,⁷ Konzelman,⁸ Lord,⁹ Bowditch¹⁰ and others have long ago established this fact, and the consensus of opinion of the best observers is that from 45 to 75 per cent. of all cases of serofibrinous effusion are of tuberculous nature. In a few cases, however, the diagnosis is uncertain and a pleural puncture is required to reach a decision. In these cases a good stereo-radiograph may take the place of the trocar. It will show the circumscribed lung abscess standing out quite distinctly in plastic effect when the two plates are merged into one by the use of the prisms.

A practical demonstration of this will do more in illustrating this fact than any description. I show here a stereo-radiograph of a lung abscess, which was of great assistance to me in the operative treatment and was in a measure instrumental in suggesting to me a new



Fig. 3.—Woman's chest, showing normal location of heart and liver. A, apex scapulæ; B, upper border of liver. Note distance between them.

method of treatment of lung abscesses. The case will be reported and the method fully described at the 1910 meeting of the American Medical Association. I desire to present the patient here for examination, together with the radiographs before and after operation.

In contradistinction I also present a stereo-radiograph of a left pleuritic effusion. Here we have an entirely different picture. The density

6. Brauer: Lungenchirurgie.

7. Murphy: Oration on surgery. Jour. A. M. A., August, 1898.

8. Konzelmann: Ueber den Einfluss pleuritischer Exudate auf den Verlauf der Lungentuberculose. Beitr. zur Klinik der Tuberculose, Bd. x, Heft 4.

9. Lord: Treatment of Serofibrinous Pleuritis. Boston Med. and Surg. Jour., April 15, 1909.

10. Bowditch: Transact. Am. Climatolog. Assoc., Vol. vi, 1889.

of the shadow shows the fluid to have filled out the entire left chest, pushing the heart to the right, so that the apex is behind the sternum and the right border of the heart two and one-half inches to the right of the right border of the sternum. Comparing the two radiographs, one can not doubt the value of this newer and perfected diagnostic aid—namely, the stereo-radiograph of the chest for cases in which the diagnosis is doubtful.

During the past two years we have employed the bismuth vaselin paste for diagnostic and curative purposes in empyema, and experience has taught us that some cases of empyema had resulted from rupture of a lung abscess into the pleura. This could be ascertained by radiographs which present to view the shadow of the injected paste, outlining a separate cavity within the lung tissue besides that of the pleural

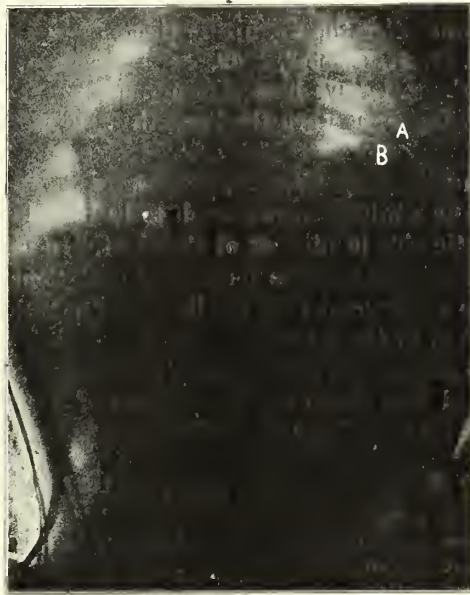


Fig. 4.—Same woman's chest when corset is worn. Note displacement of liver upwards, A and B; also heart pushed to left.

cavity itself. The radiographs here shown clearly illustrate this fact. Whenever the patient coughed out some of the paste it indicated that an abscess had existed previous to the empyema and the bronchus leading into it was still open.

While the injections of the bismuth paste are now principally used for therapeutic purposes and radiographs are not regarded by many as absolutely necessary, I found them very instructive and a valuable guide in the treatment. They inform us of the size and the shape of the cavity, and frequently disclose the origin of the disease. The abscess may originate in the spleen, liver, appendix, ribs, etc. I have, therefore, taken them in all cases.

I shall show several slides which will illustrate interesting examples of each variety. The cases will be described in detail in a future publication.

Especially interesting is the stereoradiograph of an empyema which for twenty-eight years persisted in daily discharging from two to four ounces of pus through a rubber tube drainage. The picture of the anatomic changes produced in the chest by this prolonged suppuration, as shown in this radiograph, are very instructive. Nature has made an attempt to obliterate the cavity by drawing the ribs, spine and diaphragm toward the center, until the cavity has become a small, shriveled, pear-shaped pouch.

This stereoscopic view is especially instructive, because it shows in plastic effect the outline of this pouch, injected with two ounces of paste, which were left in for absorption, and which also accomplished the main object of the injection—namely, the cessation of discharge and closure of the sinus after the tenth injection.—Case Illustrated in *The Journal of the A. M. A.*, October, 1909.

Examples such as I have here shown must tempt us to a routine employment of radiographs when the bismuth paste is injected for curative purposes.

In connection with these foregoing studies we have made an observation which seems to me important enough to be included in this presentation of diagnostic aids in diseases of the chest. In comparing a large number of chest radiographs taken for various conditions, we incidentally observed that the upper border of the liver in the male chest was considerably lower than in the female.

A series of 55 consecutive radiographs (36 of men and 19 of women), most of which had been taken for the purpose of discovering incipient tuberculosis, were examined and the following results obtained:

Upper border of liver between the	Male chests.	Female chests.
12th costo-vert. articul.	3	1
11th costo-vert. articul.	22	1
10th costo-vert. articul.	11	15
9th costo-vert. articul.	..	1
8th costo-vert. articul.	..	1
7th costo-vert. articul.	..	..
	—	—
	36 cases.	19 cases.

All the radiographs of women had been taken without their corsets on.

Comparing these figures, we note that with few exceptions the upper border of the liver in men is one to two inches lower than that of women.

We are accustomed to ascertain the liver dullness by percussion of the anterior and lateral aspect of the chest, taking the anterior ribs as landmarks, but in the study of radiographs we must take the costo-vertebral articulations as landmarks, because they are fixed points. The posterior portions of the ribs give a clear, distinct shadow. The anterior

portions do not show on the plate when the radiograph is taken by the usual method (the plate at the back), and therefore could not serve us as landmarks.

This observation suggested that habitual tight-lacing might have produced a permanent upward displacement of one-half to two inches, or a flattening out of the liver, producing this shadow.

Thereupon, the following experiment was carried out: Radiographs of the chests of women with and then without their corsets were taken (Figs. 3 and 4), and by exact measurement on the plates the actual displacement of the liver, heart, scapula and the change in the angle of the ribs were noted. With the corset snugly laced the upper border of the right lobe of the liver had been further displaced from one to two inches upward. The heart was displaced upward from one-half to one inch and slightly pushed to the left side. The ribs after lacing changed their angle from five to ten degrees downward, and the intercostal spaces diminished at least thirty per cent., especially in the lower part of the chest.

The apex scapulæ, although not a fixed point, because it changes with the motion of the arms, was nevertheless a valuable landmark, because all radiographs had been taken with the arms downward.

In the study of diseases of the chest these anatomical differences, if corroborated by others who have the opportunity of examining large series of chests, must be of considerable importance, and I shall keep further record in the future of all cases to determine whether the findings in this first series will repeat themselves.

My experience with radiography in diagnosis of diseases of the chest has resulted in these conclusions: That imperfect or even mediocre radiographs of the chest are worthless or even misleading.

That perfect radiographs are of great assistance in differentiating effusions in the pleura from consolidations, empyema from lung abscess, by outlining clearly the size and contour of both, when filled with bismuth paste, thus assisting in their rational treatment.

Of greatest assistance, however, I consider the stereoradiograph of the chest for recognizing pulmonary tuberculosis in its earliest stages and in differentiating the active from the latent tubercular process of the lung.

P. S.—Since the presentation of this subject I have made an anatomic study of the bronchial tree by means of stereoscopic radiographs, which has proven to be interesting not only from an anatomic point of view but will throw a strong ray of light into the mysteries of radiography of the chest, and increase the diagnostic value of roentgenography as an aid in the diagnosis of early pulmonary tuberculosis.

I take this opportunity to enclose a stereoscopic card (Fig. 4) reproduced from the original negative, and shall, at this time, make only a few explanatory remarks and promise to publish in detail the results of my investigation of this subject later on.

The entire bronchial system is here shown in its plastic effect, resembling the branches of a withered tree. The relative size and distribution of bronchi and

their division into the minute branches can be traced down to the air vesicles; in fact, in places the vesicles are filled with bismuth paste, resembling bunches of cauliflower.

The trachea divides into the bronchi opposite the sixth dorsal vertebra, the right bronchus being practically a continuation of the trachea, while the left takes an angle of 40 degrees.

This radiogram also illustrates a rare example of a chest in which the lung is perfectly clear from other shadows, and, furthermore, it demonstrates the superiority and advantage of the stereoscopic radiograph over that of single plates.

POISONING FROM BISMUTH SUBNITRATE VASELIN PASTE.*

V. C. DAVID, M.D., AND J. R. KAUFFMAN, M.D.

Of the Resident Staff, Cook County Hospital

Bismuth subnitrate has been used for a century or more and no fear was entertained of toxic effects from its use as a medicament or locally as a salve or dusting powder until Kocher's report of a case in 1882. Since that time a number of cases of poisoning from its use have been reported by different observers and the toxic effects have been attributed in some cases to the metallic bismuth and in others to the nitrate element which is converted into a nitrite, causing nitrite poisoning.

Practically all of the reported cases of nitrite poisoning have followed the use of the drug internally and when given in relatively large doses. The conversion of the nitrate into the nitrite has been attributed to bacterial action in the large intestine. The symptoms are those of poisoning from the nitrites, characterized by a considerable fall in blood pressure, a rapid, weak pulse, palpitation, vertigo, dyspnea, tinnitus, nausea and vomiting, and, most characteristic of all, a tawny cyanosis of the mucous membranes and extremities due to the formation of methemoglobin in the blood. Kobert says that the three principal symptoms of poisoning by nitrites are central nervous system irritation and palsies and the formation of methemoglobin in the blood; so that in marked cases we may expect tonic and clonic convulsions, paralysis and coma.

Poisoning from the metallic bismuth of the bismuth subnitrate has not been common and practically all of the cases have been reported from its use as a salve or dusting powder. Kocher's case in 1882 was one of pure bismuth poisoning characterized by an intense ulcerative stomatitis with black pigmentation of the gums and the mucous membranes of the mouth, associated with enteritis and nephritis. The black pigment deposited in the mouth is the sulphide of bismuth and in fatal cases is sometimes found in the intestinal mucosa associated with ulceration. The method of absorption of the insoluble bismuth subnitrate to produce toxic effects is not definitely known. It has been shown that the insoluble bismuth subnitrate is converted into a soluble toxic albuminate when bismuth is used as a dusting powder on raw surfaces. The

* Read before the Fifty-ninth Annual Session of the Illinois State Medical Society, Quincy, May 19, 1909.

cause of the ulceration in the mouth and the intestine is not known, but might be explained by reason of bismuth acting as a foreign body in the tissues or, as has been shown, by the deposit of bismuth in the blood vessel walls causing obliteration of their lumen.

In spite of these recorded cases bismuth has been used in large doses with little fear of toxic effect. In the past two years especially bismuth subnitrate combined with vaselin has been used extensively for the injection of tuberculous abscesses, sinuses and, to some extent, in empyema cavities, and also as a bone plug. Many reports of the cure of these cases are on record.

With this increased activity in the use of bismuth subnitrate it is of interest to note that cases of poisoning have occurred and some have been reported. It is the purpose of this paper to review briefly the literature of poisoning from bismuth subnitrate vaselin paste and to show that both bismuth and nitrite poisoning have occurred and, in addition, to add two cases of pure bismuth poisoning that occurred under our observation, one with fatal issue.

CASE 1.—A case of pure bismuth poisoning with recovery, reported by A. Don.¹ The case was one of acute suppurative arthritis of the knee complicated by abscess of the thigh. Injection of three ounces of a 33 per cent. bismuth subnitrate vaselin paste was made on Aug. 22, 1908, and another of four ounces on Sept. 9, 1908. Toxic symptoms on September 24 consisted of an ulcerative painful tongue and foul odor of the breath. On October 10 a blue-grey line one sixteenth inch wide appeared opposite the lower incisors. Both sides of the gums, soft palate, pharynx, tongue and cheeks were pigmented. The teeth became loose and the gums soft, spongy and sore. No headache was present. The pulse on one day was 120 and weak. The patient looked ill. On October 10 the thigh cavity was evacuated. On October 26 the blue line was still marked but fading, the teeth were firmer and the pulse below 100. There was no rise in temperature after the first injection.

CASE 2.—A fatal case, reported by H. Eggenberger,² following the injection of less than one ounce of paste with symptoms of both bismuth and nitrite poisoning. It is the only case on record where nitrite symptoms were present following the injection of bismuth subnitrate vaselin paste.

The patient was a child aged seven years with spondylitis and an abdominal sinus resulting from the opening of a tuberculous abscess. Toxic symptoms did not occur until six weeks after the injection of 30 grams of a 33 per cent. bismuth subnitrate vaselin paste, when the appetite became poor, nausea and vomiting appeared and persisted. The pulse became rapid, running from 120 to 130. A stomatitis with ulceration and dark brown pigmentation appeared. The abscess was opened and emptied but the intoxication became much worse and nervous symptoms such as nystagmus, trismus, tonic and clonic convulsions of the arms and legs appeared as in uremic cerebral irritation. The patient became comatose, had stertorous respiration and a tawny cyanosis of the face and mucous membranes. He had no diarrhea. Death occurred a few days after emptying the abscess.

Autopsy revealed a distinct hyperemia but no anatomic changes in the central nervous system. Similar changes occurred in the digestive tract, such as punctate hemorrhages in the stomach mucosa and the solitary follicles of the small intestine were red and swollen. At the ileocecal valve a greenish brown ulceration encroached on the contiguous part of the cecum. Bismuth was found chemically in the pigmented areas on the gums. Microscopically

1. Don, A.: *Brit. Med. Jour.*, Nov. 28, 1908, p. 1604.

2. Eggenberger, H.: *Zentralbl. für Chir.*, No. 44, p. 1309.

the kidneys showed hyalin degeneration of the convoluted tubules and desquamation in the straight tubules. The liver showed a round cell lymphocytosis under Glisson's capsule and the spleen showed deposits of the pigment.

CASE 3.—One of pure bismuth poisoning with fatal termination which probably resulted from a chronic nephritis and an acute suppurative focus, reported by Dr. E. G. Beck.³ The patient was a male, aged 57, with a chronic tuberculous hip with sinuses. Beginning in March, 1908, the sinuses were injected with a 33 per cent. bismuth vaselin paste repeatedly during a period of 60 days in which time about twelve ounces of pure bismuth was used. Toxic symptoms gradually developed with blue pigmentation of the mouth, ulcerative stomatitis, diarrhea, thirst and nephritis. The symptoms gradually subsided and the patient returned to his occupation, though the radiograph still showed deposits of bismuth in the pelvis. Five months later an abscess formed following an injury to the wrist. The patient had a subsequent history of sepsis and died Aug. 16, 1908. Autopsy revealed the mucosa of the intestines huckleberry jam color and an interstitial nephritis. Microscopically and chemically bismuth was found or demonstrated in the liver, spleen, intestines and the heart muscle.

CASE 4.—A case of pure bismuth poisoning observed by Dr. Kauffman. W. B., male, aged 24 years, bookkeeper, entered the Cook County Hospital on Dr. Ryerson's service Aug. 31, 1908, with a diagnosis of tuberculous hip of twenty-one years standing, with old healed and discharging sinuses. On September 8, three ounces of a 33 per cent. bismuth paste and on September 28, six ounces were injected into the sinus. Eleven days later the patient complained of severe pain and burning in the mouth, which increased so much that he took only a little of liquid diet. The gums were swollen and very tender. A gradually widening heavy blue line showed on the gums, the lower lip and on the tongue. Small superficial ulcers appeared on the left side of the tongue. These gradually increased in size and coalesced until larger than the thumb nail. This ulcer was covered with a dirty blue-black membrane. The fauces and throat showed the same swollen and pigmented condition. Salivation was constant, intense and very distressing. The patient complained of headache and obstinate constipation. His general condition was good most of the time with a normal temperature and pulse. The blood showed a leucocyte count of 10,000. The red cells showed no basophilia. Six weeks later, the stomatitis had subsided though the pigmentation of the mucous membranes of the mouth was still present. The patient complaining of pain in the hip and the x-ray showing a necrotic area and deposits of bismuth near the joint, the sinus was opened and the dead bone removed. After five months the sinus had closed. The blue deposit still remained on the gums in a deep blue line, about one eighth inch in width and extending to the very margin of the gums. Both labial and lingual mucosa of the lower jaw was involved. Points of teeth contact on the lips showed the blue outline. Tongue tip and the lateral margins extending to the under surface showed areas of bluish discoloration, solid at first glance but made up of punctate spots about the size of a pin point.

CASE 5.—A case of pure bismuth poisoning running an acute course and terminating fatally, observed by Dr. David. H. F., aged 21, freight handler, entered Cook County Hospital on the service of Drs. Kahlke and Keyes. A diagnosis of tuberculous hip with a sinus opening above Poupart's ligament, was made. On January 19, six ounces of bismuth paste was injected and ten days later the patient complained of soreness of the gums and increased flow of saliva. A light blue discoloration of the gums, linear in character, about one-tenth inch from the incisor teeth on the lower jaw was found. This pigmentation extended and ulceration occurred. Ten days later a most extensive ulcerative stomatitis was present. Both the labial and lingual surfaces of the gums of the lower jaw showed a heavy greenish blue line next to the teeth. The gums were red and swollen and somewhat necrotic at their borders.

3. Beck, E. G.: Jour. A. M. A., Jan. 2, 1909.

The labial, buccal, and lingual mucosa contiguous to the lower jaw was the seat of superficial ulceration, dime size, with gray centers and deep blue to black pigmented edges. The fauces, right tonsil, dorsal and ventral surface of the tongue were the seat of punctate blue pigmentation. The lips were so swollen that the patient could not enunciate clearly. His breath was putrid and salivation to almost the end was extreme. He presented a pitiful picture, lying with his head over the edge of the bed drooling and groaning. He complained of burning and soreness in the mouth, had complete anorexia, some nausea and vomiting and one attack of epistaxis. His bowels were loose, and mucus and blood were passed on different occasions. Emaciation became extreme and his general condition worse though his pulse and temperature were relatively low, 100 to 120 and 99 to 100 degrees respectively until just before his death, which was preceded a day or so by involuntary urination and defecation, insomnia and choreiform movements. At no time were the nitrite symptoms, such as dyspnea, rapid pulse or cyanosis noted.

The laboratory findings were practically unimportant. The blood showed hemoglobin, 60 per cent.; white cells, 12,000 with differential counts practically normal; red cells, 4,000,000 and no basophilic degeneration on repeated examinations. Urinalysis was negative as to albumin and sugar but showed a specific gravity of 1.010 and a trace of bile pigment; microscopically, fine and coarse granular casts were found.

The treatment instituted was enlargement and opening of the sinus with finger curettement under local anesthesia; hot applications over joint and injections of warm olive oil followed by irrigation with hot sterile water and manipulation which succeeded in removing a large amount of pus and liquid paste; tonic treatment, as nutrient enemas and syrup ferric iodid.

Dr. Walter S. Haines, whom we wish to thank for his very kind interest and suggestions in these cases, was unable to personally analyze the specimens of the urine and the bismuth subnitrate used in the paste injected into Cases 4 and 5, and submitted them to Dr. Ralph Webster of the Chicago laboratory, who made the following report:

	Per Cent.
Bismuth subnitrate	99.19
Moisture .....	.76
Total	99.95

Impurities (arsenic and silenium) absent.

Urines from cases 4 and 5 both contained bismuth in undetermined quantities.

Autopsy on case 5 the day after death showed no gross lesions except marked ulcerative stomatitis with pigmentation of the mucous membranes of the mouth; moderate diffuse nephritis; general enlargement of the mesenteric lymph glands; enlarged spleen; moderate degree of catarrhal enteritis but no pigmentation or ulceration of the intestines as far as examined; two areas in the stomach almost the size of a silver dollar of marked hyperemia but showing no pigmentation. In the lower right quadrant of the abdomen, retroperitoneal and external to the psoas muscle was an abscess containing about eight ounces of thick yellow pus in which were found, free, several masses of vaselin, each larger than an English walnut. At the bottom of the abscess cavity was found a half-ounce of white putty-like material, apparently free bismuth. The abscess did not connect with the spine but led to the sinus connecting the abdominal wall and the right hip joint. Microscopically the tissues of the organs were normal except hyalin changes in the convoluted tubules of the kidneys and some deposit of black pigment in the straight tubules. All of the tissues showed passive hyperemia. The abscess wall showed deposits of black crystals with a wall of round cell infiltration and fibroblasts growing into the foreign material.

CONCLUSIONS.

Poisoning from bismuth subnitrate vaselin paste is more common than we had supposed. Since the report of these cases, in an examination of about twenty-five orthopedic cases in the Cook County Hospital in which bismuth had been injected into their tuberculous sinuses more than once, we found that in six cases there was more or less pigmentation of the gums. In one of the cases extreme blue pigmentation was present on the gums, lips and the cheeks without subjective symptoms. From this we have reason to believe that pigmentation of the gums is an early sign of bismuth intoxication and should be taken as a signal to at least discontinue the administration of the paste.

In the reported cases four of the five received six ounces or less at the first injection and ten ounces or less in toto.

One fatal case occurred after the use of less than one ounce of the paste.

Toxic symptoms developed after the first injection in from ten days to six weeks, both extremes being fatal cases.

The use of the *x*-ray apparently is not a factor which might influence poisoning, as some of these cases were not skiagraphed after the paste was used.

There are acute and chronic cases of bismuth poisoning, the former being fatal with general symptoms and the latter tending to a slow recovery with practically only local manifestations, but the onset of both types is very much the same.

Thus far no case of pure nitrite poisoning following the use of bismuth subnitrate paste is on record, and, though there is but one case where the nitrites played a part in the poisoning, it seems that danger should be avoided by the use of bismuth carbonate.

Impurities in the bismuth subnitrate are not a factor in the poisoning because the metallic bismuth has been found in the local pigmented areas and in two well defined cases the bismuth showed no impurities.

DISCUSSION

Dr. Emil G. Beck, of Chicago, said:—The essayists have rendered a valuable service to the medical profession in reporting these cases, because they serve as a warning to careful use of the bismuth paste. I reported a case of bismuth poisoning to this society a year ago, and sounded a note of warning against the indiscriminate use of the paste. I have employed a method of preventing bismuth poisoning which works exceptionally well. A young man, who received injections of seven hundred and twenty grams of the bismuth paste, six weeks afterward developed a discoloration of the gums, and he lost ten pounds in weight, with other symptoms of bismuth intoxication. I injected one pint of olive oil into the chest sinus, and in twenty-four hours the entire mass was dissolved and withdrawn, and here I show you a radiograph which shows only a little bit of the paste left. The patient has regained the ten pounds he had lost in weight during the bismuth intoxication and is now perfectly well.

When I notice a blue discoloration around the gums, I regard it as a favorable sign and not a poisoning. A slight absorption is needed. If you stop injecting the paste at that point you will have a fine result, and the patients will gain in weight. If the gentlemen will watch for this discoloration around the gum, they will find that it takes place in thirty per cent. of the cases. This, however, is not bismuth poisoning. Curettage of the sinus for removing

the paste is a most pernicious practice that of itself produces rapid absorption of the paste and usually requires an anesthetic which, in severe poisoning of this kind, is a decided factor in causing a fatality. I was fortunate enough to discover, in the early period of my work, the signs indicating bismuth absorption, and of the large number of cases which I have treated I have yet to see a fatal case. The case reported by me in the *Journal of the American Medical Association*, Jan. 2, 1909, was not one of my own, but occurred in the practice of another physician.

Dr. David (closing the discussion on his part):—With regard to the fatal case mentioned, I will say that this patient did not have an anesthetic, and there was simply a finger curettement of the sinus, which at autopsy was shown to connect at some distance with the abscess cavity containing the paste. Injections of olive oil, with hot applications and thorough irrigation with hot water, after the use of the olive oil, were employed in this case, and we removed a considerable amount of the paste in this way.

Dr. Kauffman (closing the discussion):—The latest work by von Lewin, of Berlin, recognizes the fact that all the symptoms, including dyspnea, cyanosis, etc., are due to bismuth and not to the nitrite poisoning.

THE SURGICAL TREATMENT OF APPENDICITIS.*

CLIFFORD U. COLLINS, M.D.

PEORIA, ILLINOIS.

I am well aware that this is an old and threshed-out subject with seemingly nothing new left to say about it, but, while the theory and practice of the medical profession still differ widely, a few remarks concerning it may not be out of place.

For instance, it is generally conceded that the best time to remove an inflamed appendix is in the first twenty-four hours before perforation has taken place. No deaths have occurred in our work where the appendix was removed during the first thirty-six hours of the attack, but the records show that only a small percentage of cases are brought to the surgeon during that period. In considering the reasons why this is the case it becomes apparent that a great part of the responsibility rests with the family physician. It is not within the province of this paper to go into the diagnosis of appendicitis, but when the family physician is called to a patient who has been taken suddenly ill with pain in the abdomen it is his duty to see that patient frequently during the next few hours until the diagnosis is made. It is not sufficient for him to leave some medicine for pain and not see the patient until the next day, for then the very important twenty-four hour period would be lost between his first and second visit.

A patient who has been taken suddenly ill with pain in the abdomen should have his temperature and pulse taken at least every three hours. The physician should see the patient that often or a trained nurse, or some one competent to take the pulse and temperature and report to the physician, should be placed in charge. If the temperature begins to rise and he develops a tenderness in the right lower abdomen in the region

* Read at the Fifty-Ninth Annual Meeting of the Illinois State Medical Society, May 19, 1909.

of the appendix, he probably has a beginning appendicitis and the appendix should be removed. He should not be given an opiate to mask the pain and tenderness until the diagnosis is assured. A placebo is justifiable until that time.

Great care should be taken to get the temperature accurately. A short time ago I was called by the family physician to see a little girl who had been taken ill at 6 o'clock in the morning with pain in the abdomen. The family physician had been called promptly and found tenderness on pressure over the region of the appendix. When I arrived the pain and tenderness were typical, but the temperature, taken with the thermometer under the tongue, was normal. Knowing that appendicitis should cause at least a little rise in temperature, I was disinclined to operate while the temperature was normal. We put the thermometer in the rectum and it still registered normal. An investigation showed that the thermometer had stood at normal before it was placed in the rectum. The mercury was shaken down below the normal mark and the temperature taken once more per rectum. The thermometer then registered $99\frac{1}{2}^{\circ}$ and gave us the conclusive evidence for which we were searching. The little girl was taken to the hospital and the appendix removed just four hours from the beginning of the attack. When it was removed and examined there was a gangrenous area in the mucous membrane.

Of course, if the patient or relatives do not call the physician at the beginning of the attack, or do not accept his advice, the responsibility for the outcome becomes theirs and not his. It will be readily admitted that a few of the patients who are operated on during the first twenty-four hours of the attack might recover from that one attack without operation; but all the patients operated on during the thirty-six hour period are probably saved from a possible peritonitis septicemia, pyemia, septic pneumonia, septic nephritis, abscess formation, fecal fistula, ventral hernia, obstruction of the bowels and a prolonged convalescence, to say nothing of a possible death.

It has been urged that it is extremely difficult at times to get the exact time of the beginning of the attack, and sometimes what has seemed to be the first twenty-four hours of the attack has really been the second or third twenty-four hours. I have a rough working rule by which I am guided in these cases. The early operation must be done within the first thirty-six hours (preferably twenty-four) of the attack and the temperature must not be more than $100\frac{1}{2}^{\circ}$, nor the pulse more than 110. If there has been an error in getting the time of the beginning of the attack, and the appendix has already been perforated, the pulse and temperature will usually be higher than those figures.

If the patient is not seen by the surgeon during the safe thirty-six hour period the next best plan is to treat him according to the principles laid down by Dr. A. J. Ochsner. Give him nothing by the mouth and allow the intestinal tract to rest. Particularly beware of giving him anything to move the bowels. When the intestines become quiet and peristalsis has ceased the pain will be less severe and the patient

will usually be more comfortable. The head of the bed should be elevated at least eighteen inches and he should lie on his right side. This allows the intestines and omentum to fall around the inflamed appendix and encourages protecting adhesions and lets the pus, if there should be any, gravitate against the outer wall of the lower abdomen and pelvis, which is the safest place for it to be.

Some method should be used which allows warm salt solution to flow slowly and continuously into the rectum, as recommended by Dr. J. B. Murphy. Under this treatment the patient will usually recover. He may have a serious time with peritonitis and approach very near to death's door, a localized abscess may form, or resolution may occur without peritonitis or pus. During this stage of the disease, from the second day on until the condition of the patient improves, I believe that the surgeon had better stay his hand.

I am well aware that there are several advocates of an operation during this period, particularly in the early stages of peritonitis, but my own experience has not been as successful as theirs seem to have been. In our work we have had nine deaths in the last five years following operations for appendicitis. These operations were done between the second and eighth days of the attack. Seven of these operations were done at the homes of the patients in the country and other towns and one was done at the home of the patient in Peoria.

This experience leads me to believe that if the patient is at his home and his appendix has perforated and his condition makes it unsafe to remove him to a hospital, it is safer to treat him according to the principles laid down by Dr. Ochsner than to operate on him. The principles of the Ochsner treatment can be more easily applied under those conditions than an operation can be successfully done. I am also positive that an operation during peritonitis, or after perforation of the appendix has occurred, if done at all, should only be done in a hospital where the patient is under the direct care of the surgeon. And if the patient is in the hospital under the direct care of the surgeon I am inclined to believe that his chances for recovery will be just as good or better if he is put on the Ochsner treatment and the operation is postponed until the inflammation has subsided.

Gynecologists have learned to delay operation in acute salpingitis until the inflammation has subsided, and the pelvis is considered the safest part of the abdomen in which to have inflammation and its products.

The mere fact of letting virulent germs, which the system has not had time to fortify against, flow over the fresh, raw surfaces of the incision is no inconsiderable factor in the danger; and I have seen patients who seemed to be holding their own fairly well against the infection suddenly become worse and die when an incision was made from the third to the eighth day of the attack.

After the acute inflammation has subsided and the pulse and temperature become normal there comes again a time when an operation

can be done safely. If the appendicitis ends in resolution without a perforation it will only be a few days until the safe period for operation is reached.

If the appendicitis is succeeded by peritonitis without abscess formation there will be a longer period of time before any surgery is indicated. After the abdomen has finally become flat, the pain and tenderness have subsided, and the pulse and temperature have become normal there comes a period in which it is safe to remove the appendix. This safe period following the attack is the next best time to operate after the first thirty-six hours of the attack has been allowed to pass without the removal of the appendix.

If a localized abscess forms it becomes the duty of the surgeon to make an incision and evacuate the pus. Time enough should be allowed for the system to fortify itself and contract an immunity against the particular infectious germ causing the trouble. This usually occurs about the tenth day of the attack and is indicated by a lessening in the rapidity of the pulse to about ninety.

It was considered formerly that if a large abscess was evacuated there would be no further trouble because the appendix would surely be sloughed off. More experience has demonstrated that this idea was erroneous. The percentage of appendices sloughing off in an abscess is very small, and in the large majority of cases the appendix is left ready to cause trouble when favorable conditions occur and the right germ happens along to infect it. This fact makes necessary a second operation to remove the appendix after an abscess has been opened unless a sloughed off appendix comes out with the pus or the appendix is found in a location which allows of its safe removal without danger of contaminating the general peritoneal cavity.

After the pus is removed the patient's condition usually rapidly improves. The pain and tenderness subside and the pulse and temperature become normal. It is the practice of some surgeons to wait until the drainage tract has closed before doing the second operation for the removal of the appendix. If the patient is in a hospital and should remain until the drainage tract closes it means a long hospital experience which is debilitating both to himself and his pocketbook. If he leaves the hospital, although he has instructions to return and have his appendix removed as soon as the drainage tract closes, he will probably procrastinate after he gets to feeling better and not return until another attack of appendicitis forces him to return. This is dangerous for the patient and unsatisfactory for the surgeon who earnestly desires to permanently relieve him of the dangers of appendicitis.

If ether or chloroform was administered when the abscess was opened the unpleasant features of the anesthesia is a factor in making the patient procrastinate and not return for a second operation.

For these reasons it is highly desirable that the patient should have his appendix removed and be free from the dangers of future attacks of appendicitis before he leaves the hospital or before he goes from under the surgeon's care.

In an effort to accomplish this I have adopted the following method of procedure which has so far proven safe and satisfactory: Under nitrous oxid gas anesthesia a very short McBurney incision is made to the outer side of the abscess cavity and the pus evacuated. The skin incision is very short, from one-half to one inch long, and the opening through the split muscles is also very small. This small incision is sufficiently large to permit of the escape of the pus and presents a very small area of raw surface for absorption as the pus flows over it. No attempt is made to find or remove the appendix at this time, although the pus is watched closely to see that it does not contain the sloughed off appendix. In two cases we have seen the appendix in the pus and, of course, this stopped further operative procedures. In every case that the appendix was not seen in the pus and a later operation was done for its removal it was found intact with another infection easily possible.

Nitrous oxid gas is the safest and most pleasant anesthetic we have. It throws no additional work on the kidneys, which are apt to be impaired after an acute infection with abscess formation. The entire anesthesia does not usually last more than two minutes and the patient awakens quickly and does not have any of the unpleasant after effects of ether or chloroform anesthesia. There is an inhaler now on the market which can be attached directly to a cylinder of gas. This makes a very portable apparatus that can be easily taken to the patient's home should his condition prevent his removal to the hospital before the abscess is opened.

After the pus is evacuated the patient's condition usually improves rapidly and in a few days he is feeling good, with temperature and pulse practically normal. If he is not already in the hospital he is then taken there for the removal of the appendix.

After the pulse and temperature have remained normal for a week the appendix is removed. This is usually from ten to fourteen days after the abscess has been opened. The usual preparation of the abdomen is made. Adhesive rubber dam, which was brought to the attention of the profession by Dr. J. B. Murphy, is sterilized and placed over the opening of the drainage tract. An incision is made to the inner side of the drainage tract and the peritoneal cavity walled off with gauze. The adhesions around the appendix are separated and it is removed. A drain is placed down to the former site of the appendix and carried out through the drainage tract. The incision is completely closed.

By this procedure all further dangers of appendicitis are prevented by the removal of the appendix before the patient leaves the hospital. The patient's stay in the hospital is markedly lessened by removing the appendix before the drainage tract has closed.

CONCLUSIONS.

1. The best time to remove an inflamed appendix is during the first thirty-six hours of the attack before it becomes perforated.
2. The physician who does not see or hear from his patient for twenty-four hours after his first visit in a case of suspected appendicitis is not doing his full duty to his patient.

3. After the appendix has become perforated the patient will do better if its removal is deferred and he is placed on his right side with the head of the bed elevated and treated according to the principles of the Ochsner treatment, with the Murphy method of continuous rectal saline infusion.

4. After the appendicitis or the succeeding peritonitis has subsided the appendix may then be removed more safely.

5. If a localized abscess forms the pus should be evacuated under nitrous-oxid gas anesthesia.

6. As soon thereafter as the pulse and temperature have remained normal for one week the appendix may be safely removed.

THE PUS APPENDIX.*

G. W. GREEN, M.D.

Surgeon to Ravenswood Hospital.

CHICAGO.

Definition.—Any pus inside or outside the appendix caused by the appendix. This will include most of the really acute and some of the chronic cases of appendicitis.

Diagnosis.—It occurs at all ages—our cases run from 19 months to 80 years old—most common from 12 to 30 years.

We always have three cardinal symptoms: pain, tenderness and resistance. The pain may be all over the abdomen in the beginning, but usually locates itself in the region of the appendix, which, in the great majority of cases, is somewhere near the McBurney point. It has been found by us up, under and attached to the gall bladder, in the median line just below the umbilicus, and in the left inguinal region. The character of the pain varies from a slight "colicky sensation" to a steady boring pain, or it may be paroxysmal, due to distention with gas. Sometimes the pain may be comparatively slight, even in very bad cases. This pain is to be differentiated from gallstone pain by its location and the tenderness of the appendix, which goes with the pain, but when this is located under or near the gall bladder the differential diagnosis is not so easy; but with this pain often goes the symptom of vomiting, which helps us out.

The vomiting in appendicitis is simply emptying the stomach of its contents, and usually ceases as soon as the stomach is empty, and the pain continues while the emesis of gallstone colic is usually bile, and the pain ceases when the vomiting is over and the spasm relaxes. The emesis of ulcer of the stomach comes a certain length of time after food is ingested, is usually very sour—acid—and not accompanied by much food or bile. The pain and vomiting of gallstone colic are usually relieved by a small hypodermic of morphin, while that of a local peritonitis, due to appendicitis, persists after the effects of the morphin have worn off.

* Read at the fifty-ninth annual meeting of the Illinois State Medical Society, Quincy, May 19, 1909.

Tenderness is always located over the appendix or appendiceal abscess, and, as it is in the great majority of cases located in the right side, at or near McBurney's point, it is easy to connect it with the appendix. It is sometimes confused with a twisted Fallopian tube, but these are more movable and can usually be felt through the vagina or rectum. An appendiceal abscess has been diagnosed as stone in the right ureter, but a cystoscope in the bladder and a catheter in the right ureter, together with x-ray picture, will clear the diagnosis.

Empyema of the gall bladder has been mistaken for an appendiceal abscess. In these cases the gall bladder may be greatly distended, reaching to or below McBurney's point, and the whole right side of the abdomen be very tender and rigid. In these cases the diagnosis between an appendiceal abscess and an empyema of the gall bladder situated rather high is extremely difficult. A displaced right kidney, with hydronephrosis, is at times taken for an appendiceal abscess, but the kidney can usually be pushed upward, and here again the ureteral catheter will complete the diagnosis. Tumors of the cecum or ascending colon are sometimes taken for an abscess of this region. They are many times nodular, which is not true of the abscess. They are sometimes movable, which is also not true of the abscess. But the surgeon who essays to open an appendiceal abscess must be an infallible diagnostician, or be able to do the most radical resection of a tumor in this region, if he expects to be just to his patients.

Resistance is always to be felt, and the greater the degree of peritonitis the greater the resistance to the touch. If the appendix has ruptured or perforated and the peritonitis is, or becoming, general, the resistance is about the same over all parts of the abdomen. If it is walled off and localized, the resistance or splinting of the parts is simply over the abscess.

The only sane treatment is removal of the cause, and the sooner this is done the better the patient's chance for a speedy recovery. I have never been sorry on account of removing one too early, but have often been sorry when I have waited. If the patient has had cathartics and food, gastric lavage, several times repeated, suggested by Dr. A. J. Ochsner, is essential before the patient is anesthetized. Here is when prophylactic treatment is of the most value to the patient. An early diagnosis with the appropriate treatment will save much suffering, many lives and much time in bed. Too much stress can not be laid in the prohibition of food and cathartics in all these cases, as has been so ably pointed out in a recent paper on "Prevention and Inhibition of General Suppurative Peritonitis," by Dr. A. J. Ochsner.¹

The right rectus incision, of sufficient length to give plenty of working room, we have found to be much the best in the majority of cases. This incision can be lengthened at will, if necessary, without danger of ventral hernia. It allows plenty of room to get in one side of the abscess cavity, and if the surrounding viscera are walled off and packed away from the infection with normal salt laparotomy pads before opening the abscess the protecting omentum can then be peeled away from the appendix, the cavity drained of pus, the appendix removed, and the cavity drained

1. Ochsner, A. J.: The Prevention and Inhibition of Diffuse Suppurative Peritonitis. ILLINOIS MEDICAL JOURNAL, May, 1909, p. 517.

through a stab wound, the protecting omentum sutured back in place after the gauze packing has been removed, the wound closed with catgut and horsehair, and the whole thing is done without affecting any other part of the abdominal contents. If a McBurney incision is made instead of the right rectus, all is well, providing you find all as expected, but if more room is wanted it is much harder to obtain without destroying muscular tissue, and greatly increasing the chances of a subsequent ventral hernia. The edges of the abdominal incision should be carefully covered with gauze pads, wet with normal salt solution, to prevent soiling with infectious material, as the abdominal viscera care for much infection which the wound through the abdominal wall will not stand.

Treatment of the appendix stump should always be: Ligature of the meso-appendix with chromic catgut, with purse-string around the stump of same material. The stump is then invaginated without being treated with carbolic acid or alcohol, and the stump of the meso-appendix sutured over the invaginated appendix stump. If linen is used for the purse-string, it should be confined to those cases where the infection is still within the appendix; otherwise a fistulous tract is likely to remain until the linen or silk has come away.

When a very large walled-off abscess is encountered, it may be best to simply open and drain, as perchance the appendix has entirely sloughed off and will flow out with the pus, as happened in one of our cases. Again, if the abscess is larger and the patient in poor condition, simple drainage may be better than to try and remove an appendix which is buried in adhesions. With these exceptions it is much better to remove the cause of the trouble at once.

In case the pus is not walled off and is free in the peritoneal cavity, first remove the appendix, with very slight packing away, and then place two drains, one in the pelvis, which will be found filled with pus in these cases, and the other to the appendiceal stump. This should all be done with practically no manipulation of abdominal viscera. If the viscera is handled in these cases of general suppurative peritonitis even very slightly, the scale may be turned from one with some hopes to one of absolute hopelessness. In all of these cases the patient's subsequent discomfort is in exact proportion to the handling of the gut.

In all cases, and especially those with pus in the free peritoneal cavity, adhesions should be disturbed as little as possible. Under no conditions should the abdominal cavity be flushed with any liquid. The pus may be soaked up with normal salt gauze sponges or laparotomy pads, if the utmost gentleness is used, and it can be done without extra handling of the viscera; otherwise it should be allowed to remain.

Closure of the wound should be done with one continuous chromic catgut suture, first through the peritoneum, then muscle and fascia. The skin is closed with horsehair. If the drains are placed through a stab wound, the original incision is closed tight. When no drainage is used, the wound is dressed dry. If drainage is used, the primary dressing is moist boric gauze. These moist dressings are continued in all the bad cases, where a large amount of drainage is desired, from one to five days, when they are superseded by dry dressings. The patient is placed in the

Fowler position, if there is much pus in the free peritoneal cavity, or if pockets of pus are found in the pelvis; otherwise the patient is kept on the right side.

If a well-marked case of general suppurative peritonitis has developed, there is no better treatment than that so ably presented to us by our Chairman² at our last annual meeting.

DISCUSSION ON PAPERS OF DRS. COLLINS AND GREEN.

Dr. A. J. Ochsner, of Chicago, was asked to open the discussion on these papers. He said: The conclusions which Dr. Collins has presented cover the subject. The most important point in the surgical treatment of appendicitis is the diagnosis. As Dr. Collins has pointed out, it is inexcusable to leave a patient, who has an acute intra-abdominal condition, without a diagnosis for twenty-four hours; to give him something for the pain, and then try to make the diagnosis the next day. I believe this is the primary cause of the still too high mortality in appendicitis. If the patient receives a careful physical examination at once this is practically certain to result in a positive diagnosis, provided there is an acute appendicitis present. If this is not possible, then Dr. Collins' plan should be followed. Nothing should ever be given that may disturb or render the diagnosis more difficult in an hour or two. He says that opiates should never be given; in fact, nothing but a placebo should be given until the diagnosis is made, and I would say, opium should never be given to any patient suffering from any intra-abdominal condition until the diagnosis has been made and until gastric lavage has been resorted to. If the diagnosis has been made, then treatment should be instituted, but if that treatment should consist in the giving of opium the contents of the stomach should first be removed by gastric lavage in order that the treatment does not furnish the conditions favorable for the absorption of septic material from the alimentary canal. I believe if this plan is followed, then the second condition Dr. Collins has pointed out will be possible. Then, these appendices can be removed with perfect safety before the infection has passed beyond the appendix itself. This treatment will prevent all of the complications of appendicitis. Appendicitis itself, so long as the infection is in the appendix, gives practically no mortality. The conditions which result after the infection has passed from the appendix are the ones that give rise to the mortality in appendicitis. Supposing, however, for some reason that the patient does not have an opportunity of having a careful physical examination made before the infection has passed beyond the appendix, this will result in a separate group of cases which we may classify as gangrenous and suppurative appendicitis, with peritonitis, the infection having extended beyond the appendix. In mild cases this further condition may never occur. A patient may have appendicitis, pass through it, and get well from it, without ever having this secondary condition. But in those cases of appendicitis in which the infection has actually passed beyond the appendix, and in which Dr. Collins advises the treatment that I have been advocating so much in the last eight or nine years, if this plan is actually carried out it will be followed by success, but unless it is actually carried out, it does not and cannot succeed. Our observations show that a very slight amount of food or a slight amount of cathartics given by mouth, is exceedingly harmful. We have demonstrated positively that one tenth of a grain of calomel may increase the leucocytes from one thousand to three thousand, and when repeated two or three times, frequently the increase in these cases is as much as five thousand beyond what they were before. A little broth, or a little food given by mouth, by causing a slight amount of peristalsis, will carry the infectious material from its localized point to a point where it can be absorbed by the lymphatics and immediately the patient has a severe septic condition. What will this treatment accomplish if, in the first place, gastric lavage is employed, so that there is

2. Eisendrath, Daniel: ILLINOIS MEDICAL JOURNAL, October, 1908.

nothing further to go through the pylorus into the small intestine? In the second place, neither cathartics nor food are introduced into the alimentary canal? If, in the third place, no large enemata are given, and if, in the fourth place, the method introduced by Dr. Murphy of continuous proctoclysis is employed, what will this do? It will make it possible in these cases of gangrenous and suppurating appendicitis, in which the infection has already passed beyond the appendix, to reduce the mortality to less than two per cent. How will it do it? It will do it, in the first place, by furnishing conditions for absorption in the peritoneal cavity which are most excellent, an opportunity to get rid of the infectious material by absorption. It will furnish these conditions and give the blood an opportunity to produce antitoxins. We have further the favorable conditions furnished by the omentum, the cecum, the abdominal wall, the pelvic peritoneum and by the position which Dr. Collins has recommended. All of these conditions will serve to circumscribe the infection. I have employed this method for sixteen years, and have had the opportunity of demonstrating in an enormous number of cases that these conditions will occur.

In regard to those cases in which Dr. Collins drains, but does not remove the appendix and in the cases in which we are not permitted to operate, we practically force the patient to live on liquids until the appendix is removed. It is strange how many of them, when they have some little pains later on which remind them of the troubles they had before, can be coaxed into having their appendices removed when it is perfectly safe to have this done.

Dr. Christopher Graham, of Rochester, Minn.:—I will speak briefly on how these cases of appendicitis are handled, and then attempt to give a few points in the differential diagnosis of perforating ulcer of the stomach, gall-stones and appendicitis. I believe when a patient presents himself early with appendicitis the appendix should, as a rule, be removed immediately and that is the practice at St. Mary's Hospital. There is another factor for the general practitioner to consider. We have in this country a good supply of surgeons. There are two classes, first, surgeons that are safe and sound, to whom we can turn our patients, and another class that call themselves surgeons. Now, if the practitioner is so situated that his patients with appendicitis can be taken, as soon as a diagnosis is made, to a Deaver, Murphy or Ochsner, or to one of the thousand and one surgeons in this country, this practitioner would feel safe and could rely on the individual surgeon's judgment and accept his advice as to what time the operation would be most safely undertaken. This matter of judgment comes through experience and experience only, and it is this judgment that should decide the time of operation, whether the patient is seen early or late. The regret is that so large a number of sufferers cannot have the services of experienced surgeons. To those who will or must seek surgical relief at the hands of the unskilled or enthusiastic learner, there is but one avenue of escape from real slaughter, and that is the unmodified Ochsner treatment with operation during the interval. A bungler at this time, if sane, will not sacrifice so many lives before he has learned the danger of his technique, or has learned a few of the rudiments of surgery. When our patient falls into the hands of an experienced surgeon, his safety depends more upon the judgment as to the proper time for operation than on technique. After forty-eight hours most patients are considered safe to operate upon, even upon the third, fourth or other day of attack, though a few are carried along after the second day. Again a patient may be seen within thirty-six hours and yet be considered within the danger limit and carried over. There can be no hard and fast rule laid down. To say one should operate only during the first forty-eight or fifty hours and then wait for the interval is not exact teaching. On the other hand to operate as soon as the diagnosis is made, whether early or late, may carry grave danger. Of the two teachings when widely applied to the profession, the former has much the advantage.

In making a differential diagnosis in ulcer of the stomach, gall-stones and appendicitis, we must consider the primary symptoms of each trouble. In ulcer of the stomach we get the history of repeated prolonged attacks, each

day of attack running the same course—pain, gas, sour and vomiting two to four hours after meals, of relief by food, drinks, alkali, vomiting or irrigation, then a period of health. When perforation has taken place the pain and seat of pain may be quite like severe gall stone, infected ducts or perforation, or quite like perforation of the appendix. The early history will aid greatly in reaching a correct diagnosis.

In gall-stones we get the short, irregular, decided attacks of so-called indigestion, or the typical attacks of sudden, severe epigastric pain, radiating to the right arch and back, upward pressure and almost bursting feel, vomiting and after a shorter or longer period of minutes or hours the same sudden relief from pain and almost normal health. When complication, such as abscess, duct obstruction or perforation, has appeared, one will need the early clear-cut history to get at the real present condition.

In appendicitis one gets rather a prolonged history of trouble, irregular symptoms of indigestion, not so much disturbance of nutrition as in ulcer, and not the food relief or regularity of symptoms. If general abdominal pain or lower abdominal pain is developed in the history of preceding attacks, one can safely exclude gall-stones and ulcer when confronted with the severe condition of perforated appendix. If one gets an extremely acute pain that is not controlled by morphin you are apt to be facing infection outside of the gall-bladder, a ruptured appendix or a perforating ulcer. In a great many cases of perforating duodenal ulcer, the pain is situated low down and you may call it appendicitis if hasty in your diagnosis. Later the pain will creep up and you will get tenderness in the duodenal area. The early history is certainly useful in these cases for a differential diagnosis. I believe that, if you have a competent surgeon at hand to whom you can refer the patient, it is not right to wait to make a differential diagnosis if the patient has intense abdominal pain, because if it is a perforating gastric or duodenal ulcer the case needs immediate operation. If it is a perforating appendix or ruptured gall-bladder the same is true. The physician should make a surgical diagnosis and then hurry the patient to a safe operator.

Dr. William Fuller, of Chicago:—In general I agree with much that Dr. Collins has said about appendicitis, but would add a word regarding the administration of opiates for the relief of agonizing pains sometimes met with in this condition.

I feel sure that the surgeon who always advises against the relief of pain in appendicitis by giving morphin, has never suffered a genuine attack himself, nor has he seen much of this disease as the general practitioner sees it. It may be easy enough to withhold this kind of relief in hospital cases, where diagnostic measures may be quickly applied, and which may be followed at once by the operation, but in family practice, where, as a rule, the severest cases are met with, the demand often for relief is too great and too urgent for any humane or sensible physician to resist.

That morphin in a mild case might obscure the diagnosis is probably true, but that large doses, even when repeated, will not do so in severe and typical cases is true also as thousands of physicians will attest. Recently I operated on a patient for appendicitis whose pain was so sudden and severe, that he was not able to rise from the floor upon which he had fallen; and although he had received three or four doses of morphin, which had greatly relieved his suffering, this treatment had in no way clouded the symptoms, and the diagnosis could not have been, without the opiate, any more easily and quickly made.

Sudden attacks of right-sided abdominal pain in a previously healthy individual, followed by localized tenderness over the appendix, nausea and vomiting, with or without elevation of the temperature, and an increasing pulse rate, indicate so clearly the proper line of treatment, it seems incredible that a dose or two of morphin could, under these circumstances, mislead any experienced surgeon.

Dr. Frank Billings, of Chicago:—The question of diagnosis is important. The surgeon is the one to decide when to operate after the diagnosis is made.

There is one phase of appendicitis which is seen by medical men alone. General conditions are produced by chronic appendicitis, and I thoroughly agree with Dr. Graham that such an appendix interferes with digestion and the constant absorption due to the disturbed metabolism produces general changes of a degenerative nature. Hence a reason for removing the local infecting point and saving the patient from the chronic changes. I recall the case of a patient, aged 55, who had chronic appendicitis with severe angina pectoris, who was greatly improved and had no further attacks after the removal of the appendix. There is more than an immediate reason for the removal of the appendix.

Dr. John B. Deaver, of Philadelphia, was asked to discuss the papers. He said: I had hoped the chairman would not call on me to discuss this subject. I see so much of this disease and talk about it so frequently that I hesitate to say anything at this time; but it seems *apropos* in a building of this kind (referring to the church in which the meeting is being held), where the gospel of Christianity is so thoroughly promulgated, to preach the gospel of the scalpel. I was sorry my friend Dr. Graham was so lukewarm in his advocacy of early operation for appendicitis, for if there is anything I believe in it is the early application of the scalpel in the treatment of appendicitis. We should no longer rely on opium and salts; they should be relegated to the past. They have no place in the modern treatment of appendicitis, and I still give credit to that great surgeon (Charles McBurney) who, a number of years ago, came to Philadelphia and opened the discussion on a paper which I read (I think it was fifteen or eighteen years ago), in which he advocated but one treatment for appendicitis—the knife, the knife, and I can only reiterate the statements of that magnificent man. He was a pathfinder.

This subject is entirely too extensive to permit of full discussion, so I will only speak of one or two points, and I am tempted to do so after the remarks of our distinguished friend, Dr. Billings, one of our best known and best teachers.

There is one point I want to refer to. We have been speaking of twenty-four hours and thirty-six hours elapsing before operation. I am preparing a paper on peritonitis, and one of my ex-house surgeons of the German Hospital, who has collected the statistics for this paper, has gone over my records. He has secured some consecutive cases of peritonitis from appendicitis, dating from the onset of perforation of the appendix, none having been operated on in less than forty hours and some forty-eight hours after onset of the peritonitis with but one death. This shows the mightiness of the aseptic scalpel if administered at the opportune time. We should not stand here and talk about any treatment which will tide the patient over. The patient should not be allowed to reach that stage.

There is much more I could say on the subject, but it has been so well said by others this morning that I hesitate to consume further time. (Cries of "Go on! Go on!") I urge you not to wait for the interval. If I am called to see cases of appendicitis I cut them, and I cut them quick, and they get well quick. I do not mean, mark you, a patient who has been sick eight or ten days. That is a different type of case. I am speaking of the cases seen within forty-eight or fifty hours.

The Doctor spoke of temperature. There are two instruments I do not carry, the hypodermic syringe and the clinical thermometer. If I were practicing medicine, properly speaking, I would carry a clinical thermometer perhaps. So far as the practical side of it is concerned, I would rather operate on a patient with appendicitis with temperature than on an appendicitis case without temperature, that is, a temperature below normal or abnormal. So I do not think the temperature cuts any figure, with but few exceptions.

As to the question of salts, the patients with appendicitis I see die from too much pharmacy. They die from purgation, in the majority of instances, and this point was well brought out by Dr. Ochsner in the treatment of rest of the alimentary canal. I am free to confess that there was a time when I believed purgation was proper treatment, but we learn from experience. I now believe that purgation is dangerous. I also believe that the administration of opium is dangerous. After the diagnosis is made there is no time to give opium. That is the

time to cut them, and I want to promulgate this doctrine: Early diagnosis, early operation. In the majority of instances it is no trouble to make a diagnosis of appendicitis. An infant or child often makes its own diagnosis of appendicitis. A child will not allow a doctor to touch the right side, and yet there is much said about the difficulty in making the diagnosis of this disease. I am speaking now of the majority of cases. The rule which works best in the majority of cases is the best rule. There are a few cases where the diagnosis is difficult, but they are the exceptions.

As to the question of peritonitis, it is a broad one. I endorse all that has been said relative to the treatment of peritonitis. I will not operate on a case of appendicitis that has been sick three or four days, with highly distended abdomen, with inability to locate the mass in the presence of great distention; but in the presence of a mass situated low down in the right I have operated on many such cases and have had the pleasure of seeing them recover. I endorse, too, what has been said with reference to the inadvisability of removing the appendix in all cases of localized abscess formation. To follow that as a general practice would be hazardous. My experience tallies with the gentlemen who have spoken, that in quite a percentage of these cases the best line of treatment is that which has been advocated. When I operate on these patients and the appendix is right under the eye, I take it out; but I do not make a search for it, fearing I will break down barriers, and far more damage will result as a consequence.

I am very glad to have had the opportunity of saying a few words on these papers and on this old but interesting subject.

Dr. Carl E. Black, of Jacksonville:—I did not expect to say anything on this subject, and there is very little left for me to say. I am very glad indeed we have heard Dr. Deaver and the other gentlemen give us this able discussion. It seems to me, in the diagnosis of appendicitis, there is still considerable timidity existing among general practitioners, particularly those in the country. We should strive to overcome this timidity. It is very essential to make a prompt and positive diagnosis, and it is a mistake to wait until to-morrow to find out what is the matter with the patient or to see what the symptoms will be, when we ought to know the nature of the case at once if possible. In doubtful cases we should not wait more than three or four hours before seeing the patients again, and we should abandon giving something which may obscure the diagnosis.

Recently I was making up the annual report of our hospital and found that we had had a hundred and fourteen cases of appendicitis. Of this number, sixteen were pus cases, walled-off cases. Of the remaining number, there were eight cases in which the pus was located at some distance from the appendix, or where there was extension of the disease beyond the immediate region of the appendix. Three of the eight cases died; all the others recovered. Death occurred only in those cases in which the disease had been allowed to go on so long that the pus had extended beyond the region of the appendix, causing general infection of the peritoneum. It seems to me the whole matter depends on early and prompt diagnosis and early operation, and we should strive to influence the general practitioner in overcoming this timidity in declaring a positive diagnosis.

Dr. M. L. Harris, of Chicago:—One of the most pernicious practices which is prevalent to-day is the administration of cathartics in cases of appendicitis. I think a patient, with a pain in the belly, should never, under any circumstances, be given a cathartic of any kind or description until it is absolutely certain that that patient is not suffering from appendicitis or from any other condition which has produced or may produce a peritonitis.

Another pernicious teaching which has been promulgated is an attempt to divide appendicitis cases into those of so many hours and so many days. There is no condition of the abdomen which is so variable in its manifestations as that of appendicitis. I have seen patients with appendicitis die within twelve hours from the first symptom. On the other hand, a patient may go from ten to twelve days without serious symptoms being present. There is no such thing, therefore, as dividing cases of appendicitis into those of twenty-four hours, thirty-six hours and three days or four days.

There is no trouble in telling what to do in a case that has been diagnosed as appendicitis. When the diagnosis is unmistakable we should operate. The question of abscess formation does not come into consideration here. If you have an acute appendicitis to deal with, get out the appendix if you can before the infection has extended beyond the appendix. If you cannot get it out early do so just as soon afterwards as you have opportunity and the patient's condition permits. If we allow the appendix to remain the infection may extend to the veins and produce thrombosis, pyelphlebitis, etc., or it may extend to the retroperitoneal connective tissue with the formation of secondary abscesses. These are the cases that die. Therefore, I cannot agree with my friend, Dr. Collins, not to remove the appendix at the operation. Formerly I did not remove it in large abscess cases; I opened the abscesses and drained them, but not only did I have to operate secondarily many times but the patients occasionally went on with a slow infection which extended to the veins, producing thrombosis, infection of the liver, etc., and eventually died. If I had removed their appendices at the first operation they might not have died. In spite of the advice of my friend, Dr. Deaver, I remove the appendix in every case in which I can find it, and I always look for it. One great trouble is in making the incision. The rule of making the incision to the inner side of the appendix is pernicious and harmful. It leads through a region of the abdomen surrounded by small intestine which we do not wish to invade, for when we open an abscess the area of the small intestine is exposed to infection. I open into the abscess mass from the outer side, following the wall of the abdomen; the omentum and small intestines are to the inner side and are never disturbed, and we can find the appendix without getting into this region of danger. I have found that my mortality has not been increased by removing the appendix in every case at the first operation. The death rate comes from going in on the inner side and thus opening this region of the peritoneum and omentum to infection which you cannot prevent in many cases. I consider the rectus incision a bad one, and the muscle-splitting incision, keeping to the outer side, is sufficient for all cases.

Many of the patients with the fulminating form of appendicitis, which was formerly looked upon as being fatal, now get well. We have had too many of them to be mistaken. These cases should be operated on immediately, the appendix removed, the cavity drained, continuous irrigation through the rectum instituted, and this may all be done within five or ten minutes under a little gas anesthesia, and the patient will get well.

SUBSEROUS APPENDECTOMY *

E. M. SALA, M.D.

ROCK ISLAND, ILL.

Subserous appendectomy is the removal of all the appendix except its serous coat and thus avoiding the disturbance of adhesions of the appendix to other viscera. While the methods of dealing with most all forms of adherent appendicitis have been thoroughly thrashed out by various surgical societies and by printed works on appendicitis, yet I have been unable to find but slight reference to the method I wish to present to-day.

After a careful search of the *Index Medicus* and its tracings in the medical library in Washington and a perusal of the works there on appendicitis I was unable to find mention of the method, except in two instances, and they were only applicable in a certain condition—that is,

* Read before the Western Surgical and Gynecological Association, at the Annual Meeting in Minneapolis, Dec. 29-30, 1908.

where the appendix could be outlined from base to tip, although covered by adhesions. In such a case, by an incision through its peritoneal covering along its entire length, the appendix could be readily shelled out. I was further unable to find any reported cases of this or the method in point, and yet I am quite sure that the surgeons, who are doing a great deal of work on the appendix, have removed the organ in the manner which I wish to relate.



Fig. 1.—Appendix completely covered by adhesions; base exposed by incision through serous coat.

Deaver's work on appendicitis, third edition, page 438, says: "Sometimes, either because it is subserous or because of adhesions, it is impossible to bring the tip of the appendix into the operative field. Under these circumstances it is often possible, after ligating and dividing the base of the appendix, to strip it out of its peritoneal coat as a finger is pulled out of a glove. By thus removing all but the serous covering the entire area of infection is taken away and the serous envelope can not cause a recurrence of the disease."

Kelly says, on pages 575 and 576 in his work on appendicitis, "When the whole appendix lies imbedded in strong, old adhesions, and can be removed only by digging it out of its bed, there is considerable risk of tearing adjacent structures or of exciting hemorrhage by rupturing one of the numerous small vessels, which, being situated in the midst of the matted tissues, are difficult to control. In all such cases it is a good plan to detach the base of the appendix, and, then catching the freed end with a pair of artery forceps, to lift it up and circumsise the organ just below the forceps, by cutting through the peritoneal and on to the muscular coats. A longitudinal incision, including only these coats, is then carried down to the dorsum of the appendix as far as it is visible,

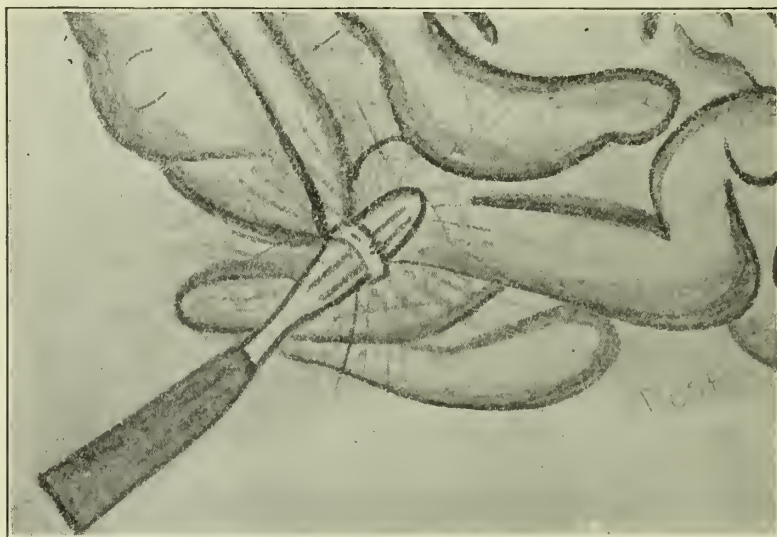


Fig. 2.—Kocher's director supporting base of appendix, except serous coat, ready for amputation.

after which the appendix can be stripped out of its bed by traction in the direction of the tip, or it can, sometimes, be delivered by a straight pull."

W. J. Walsham, M.B., Aberd., F.R.C.S. Eng., in a treatise on appendicitis, 1901, page 25, advises, "That when appendix is so adherent to important structures that the whole of it can not be removed, it should be divided near its cecal attachment, the proximal end closed in the usual manner and as much of the organ removed as safety will permit, either by dissection or by shelling out from the peritoneal cavity."

Bull and Von Bergman, page 368, say: "If the appendix is so surrounded by adherent intestinal coil that their injury is likely to follow attempts at its removal the operation had better be given up. Sometimes the appendix is so closely adherent to the wall of the cecum that it appears almost a part of it and can not, with safety, be separated from it. In such a case the appendix may be split lengthwise, and its mucous membrane removed and ligated at its junction with the cecum

and the wound in the appendix sutured. This procedure is very simple and avoids the severe hemorrhage which frequently follows rupture of extensive adhesions."

Murphy, under head of The Intermediate Operation, in his chapter on appendicitis (Keen's new work on surgery), says: "The appendix is located by the meso-ileum or tenia coli route described under the same heading. When found it is often very difficult to free it from the intestinal wall, the iliac vessels, the parietal peritoneum, the gall-bladder or the subphrenic tissues. When the mesentery is short and the appendix embedded in any of these structures the best plan is to divide the peritoneal and fibrous coats of the appendix from base to tip and shell out



Fig. 3.—Appendix being pulled out of a circular incision of the serous coat near its base.

the mucosa. There is no hemorrhage and ligations are unnecessary. The peritoneal and fibrous layers are closed with a whip stitch of catgut, the appendix amputated, and the stump embedded, as described under technics of early operation."

The two descriptions, describing removal of mucosa, are in reality a different branch of the subject, but, as they offer another solution of the problem of exposed adherent appendicitis and as they were the only methods offered in these works, I have taken the liberty of quoting them. While much more has, no doubt, been written regarding subserous appendectomy and a great deal more been enacted by individual operators (although not written up), it occurred to me that an article on the subject, with report of cases, might be of interest.

The method I wish to speak about deals with the appendix, which is not only covered by adhesions, but is completely out of sight and can not be palpated. Any method which locates where the base of appendix should be, is adopted. Usually one of the three white lines on the cecum is traced to its termination in the base of the appendix. The base having been determined, a circular incision through the adhesions and the peritoneal covering is made. Possibly only half of this incision can be carried out—that is, the part in front. A Koehrer's director or other suitable instrument is pressed through this incision under the appendix anterior to the posterior peritoneal or serous covering. The director then supports all of the base of the appendix, except its serous covering. The peritoneal covering is then retracted on both sides of the director, similar to the way in which it is stripped back in the cuff operation. The appendix is then doubly ligated, or ligated next to the cecum and clamped distally. The cecal stump is inverted by reversed mattress or purse string, or by any other manner in which the operator chooses to dispose of it. The freed end of the appendix, which includes all of the appendix except its serous coat, is grasped with forceps and by a gentle pull is shelled out of its serous coat, similar to the manner in which you would uncoil a section of intussuscepted bowel, the serous coat remaining attached to adjacent structures. Should pus exist, or a perforation be present, there is a possibility that one might not succeed in shelling out all of the appendix. The part remaining is taken care of by Nature and proper drainage. A small rubber tube, covered with gauze and rubber tissue, corresponding in caliber to the stripped appendix, is carried into the cavity which was formerly occupied by the appendix and is brought out through a stab wound or through the original incision, the tube being fastened to the serous coat by a number 1 catgut to prevent its being displaced too soon.

Should a fistula exist and the drain remain in place it would seem that it would be a very favorable kind to heal on account of its being lined most of the way by serous membrane. This certainly avoids breaking up adhesions and, as Binnie so beautifully says, "One must remember a cardinal rule in abdominal surgery—viz.: Sacrifice part of what is being removed if non-malignant rather than injure a viscus."

The first of the cases I wish to report was referred to me by Dr. H.

The patient was a Greek, aged 38 years. There was nothing in his family or previous personal history of interest. His attack of appendicitis was of three weeks' duration. Operation, Oct. 22, 1907, at St. Anthony's Hospital. The appendix was quite difficult to find on account of extensive adhesions in all directions, but was finally located by anatomical bearings such as iliocecal junction and termination of white bands, this being the point at which the appendix must terminate from the cecum. What afterwards proved to be the base of the appendix was exposed by incision, penetrating adhesions and serous coat only. A white cord presented, which at first appeared to be the right ureter on account of its location directly over the course of the ureter. A gentle pull on this cord caused it to give way and we found that all the appendix except the very tip, had shelled out of its peritoneal covering. The organ had herniated into the iliocecal fossa. The appendix was clamped and ligated and the stump treated in the usual manner. The appendix, which was three inches long, was removed.

The tip was left and a rubber tube, covered with gauze and rubber tissue, carried into the cavity in the serous coat down to the detached tip. This was left in place for several days and repacked with gauze every other day until the sinus was closed by Nature. The wound was closed by three layers of iodized catgut sutures, skin stitch being subcuticular. The patient made an uneventful recovery.

CASE 2.—M. W., aged 13 years, referred by Dr. S. The patient, who had suffered pain at McBurney's point for two weeks, was operated on at St. Anthony's Hospital, Jan. 18, 1908. There were numerous adhesions in all directions, the appendix was glued to the bowel and embedded in the bottom of the abscess cavity. It seemed that a fecal fistula would surely result if the appendix were removed in the usual manner. An incision was therefore made through the serous coat at the base of the appendix and an instrument carried under the appendix, holding up all but the serous coat. The organ was clamped and ligated, the stump turned into the cecum and the balance of the appendix excepting the serous coat was shelled out of its serous covering. A cigarette drain was carried into the serous cavity and a double coffer-dam placed in the wound after stitching the peritoneum to the skin on either side of the wound. The patient was put to bed in Fowler's position and recovery was uninterrupted. In this case the appendix was already perforated and yet the entire organ was shelled out of its serous coat.

CASE 3.—Mrs. M. B., aged 29 years, referred by Dr. B. The patient had suffered pain in the upper abdomen during the past two years. Food distressed her very much. I was called to see her April 26, 1908. She had been having pain for four days, the first twenty-four hours in the upper abdomen, which was located at McBurney's point on the second day. The patient entered Moline Hospital and was operated on April 27. I found an abscessed appendix which was completely covered by adherent bowel and other adhesions. The appendix was perforated. The peritoneal coat was incised at the base, the appendix ligated and cut and the proximal end folded into the cecum by reversed mattress suture. The opposite end was grasped by forceps and shelled out of its peritoneal covering. Fortunately the whole appendix (excepting the serous coat) was shelled out regardless of perforation. A cigarette drain was carried into the cavity left by the removal of the appendix; also a separate drain was carried down to the stump of the appendix. The wound was closed by three layers of catgut sutures.

The patient made an uninterrupted recovery.

CASE 4.—Mrs. B. A. S., aged 30 years; case in my own practice. The patient was operated on for removal of right ovarian cyst. The appendix was removed incidentally. Appendix was found to be herniated into the ileocecal fossa. The base of appendix was located and the peritoneal coat incised, the appendix ligated and treated as cases one, two and three. The appendix was quite easily shelled out of its peritoneal covering and was found to be six and one-half inches in length. A cigarette drain was inserted in the cavity and brought out through a stab wound, external to our incision. Recovery was perfect.

While four cases are hardly sufficient upon which to base a positive theorem, yet I am quite sure that the method has a permanent place in surgery and is the operation of choice in certain forms of adherent appendix.

CONCLUSIONS.

1. The vermiform appendix may be shelled out of its peritoneal covering or serous coat.
2. The remaining serous coat can not cause a recurrence.
3. This method of dealing with an appendix which is glued to other important structures avoids the disagreeable sequences of loosening up strong adhesions and in many cases may preclude subsequent operations, which are always embarrassing to the operator and a continued misfortune to the patient.

WHEN SHALL WE ADVISE OPERATION FOR THE
FIBROMATA AND MYOMATA OF THE
UTERUS.*

D. C. STREMMEL, M.D.

MACOMB, ILL.

When a patient comes to us for examination and we find a tumor of the uterus we advise that patient to the best of our knowledge and ability what is the best for her to do. In giving this advice there are several important facts to take into consideration.

1. If she comes early before the tumor is large or any special symptoms develop it is impossible from the physical examination and clinical history to say what the histological structure of that tumor is; whether it is a simple fibroma or a simple myoma, a fibromyoma or a myofibroma, or any of the other combination forms, such as the adenofibromata, the fibrolipomata, the papillomata, the cystic fibroids or the metaplastic forms.

2. On account of the many complex and variable conditions attending the growth of these different forms of tumor we can not even approximately prognosticate their life history. We do not know what their future behavior is going to be.

3. These tumors are foreign bodies and have no physiological function whatever. That they are a menace to the health and often to the life of the patient, and later frequently lead to chronic invalidism and cause death must be admitted. Retrograde metamorphosis and metabolic changes producing waste products take place in these tumors the same as in the other tissues. The often serious effect of these products on the other organs should not be lost sight of.

4. The longer these tumors exist as a rule the more liable they are to undergo degenerative changes. It is not our purpose here to discuss the various degenerations and complications that take place in these cases because that is a matter of common current literature. Clinical experience teaches every one who has had much experience that the great majority of fibroids do undergo degenerative changes and are complicated in various ways in time. Within the last five years extensive research has been made along these lines. Statistics have been compiled in series of thousands of cases showing that 60 to 75 per cent. of these tumors ultimately cause serious results. One of the most comprehensive papers that I have found on this subject was written by Dr. Charles P. Noble of Philadelphia and published in *The Journal of the American Medical Association*, Dec. 8, 15 and 22, 1906. He collected in series 2,274 cases and said that at least 60 per cent. of all cases showed degeneration or complications. He showed that 12 per cent. of these cases would have been fatal if operation had not been done. He showed that 1.4 per cent. underwent sarcomatous degeneration and from 2 per cent. to 3 per cent. carcinomatous degeneration, making about 4 per cent. of malignant de-

* Read at the Fifty-Ninth Annual Meeting of the Illinois Medical Society at Quincy, May 19, 1909.

generation alone, while the mortality, if done by a skillful surgeon, was only 3 per cent., even taking the late and seriously neglected cases into consideration. Other statistics show a higher percentage of complications, some lower. I believe the statistics above mentioned, so far as complications are concerned, are too low. I admit that my experience has been limited compared with many, but it has been such that I am compelled to maintain my present views. My first assistant, Dr. Holmes, and I have operated on 61 cases, everyone of which was complicated—4 had undergone carcinomatous degeneration, 1 sarcomatous, making 5 cases of malignant degeneration. The sarcomatous case died 3 months after operation from recurrence and one carcinomatous case died in 6 months from recurrence. In the great majority of our cases hemorrhage was a prominent symptom and was responsible for getting the patient's consent for operation. In ten cases the growths were very large and produced more or less pressure symptoms. Five were complicated with ovarian tumors. Four were the multiple fibromyomata in which we were able to remove the growth without removing the uterus. One was a large pedunculated fibromyoma weighing 19½ pounds. Ascites and edema of the lower extremities and abdominal wall were extreme. The patient had been tapped 13 times for dropsy, each tapping yielding from 6 to 7 gallons of fluid. When the incision was made 7 gallons of fluid escaped.

The omentum was plastered over a large portion of the tumor with adhesions in abundance. A myomectomy was done. The patient recovered and two years later gave birth to a child. This case and several others we have operated on are relics of the dark ages of surgery and diagnostic inability. We have never lost a case from operation, but we have had some very narrow escapes on account of undertaking cases away beyond the border line of safety. In view of what I have said, and in view of what I have learned by consulting the late literature on this subject, I am convinced that we should advise operation for these tumors of the uterus as soon as the diagnosis is made, even before degenerative changes or complications occur. The only exceptions I make are those cases that any surgeon of average ability would refuse on account of old age or a physical condition strictly contraindicating operation. These tumors have been the subject of more conservatism than tumors or pathological conditions anywhere else in the body.

The modern tendency of physicians as well as surgeons is to act in every other surgical condition before serious complications arise. Why not here? The only tenable reason for this is the possibility of a successful pregnancy in the presence of the tumor. Reliable statistics show that a very large percentage of patients with fibroid tumors are sterile, and in many of them where pregnancy does occur serious complications arise that may be fatal to both mother and child. If the real facts were known the probabilities are that many more fatalities occur from this cause than is generally supposed. Advising operation does not necessarily mean hysterectomy. Hysterectomy should be advised as a rule after the menopause, but before that time the operation of selection should be myomectomy whenever that is possible. The cases in which

myomectomy is impossible are very often sterile anyway and a hysterectomy should be done. The operation of myomectomy is by no means a simple operation—not nearly so simple as most of the hysterectomies. An important point is hemorrhage during and after operation. When the growths are large, according to the best authorities, drainage should be secured, and all dead spaces avoided by suturing the peritoneal covering to the base in such a way as to eliminate them. In one case I removed thirteen growths, varying in size from a large walnut to a hickory-nut. Six months later the patient married, and eighteen months later gave birth to a healthy child with no complications during labor. Myomectomy is sometimes followed by recurrence because it is not always possible to get every focus of new formation.

The mortality of these operations, if done early before complications arise, should be nil, unless some accident, such as thrombus or embolism, or the anesthetic, should cause death; but, if done late—even if done by the most skillful hands in surgery—the mortality must be much higher. Within the last few months I have asked a number of my colleagues in my neighboring cities, "When do you advise operations for these tumors?"

Dr. J. F. Percy of Galesburg said: "I always advise their removal, for the reason that no woman is really healthy that possesses one. The risk is slight in the early stages. If allowed to remain until degenerative changes or complications occur the mortality rate progressively increases, whether operated on or not, just in the degree that operation is delayed. Anything abnormal in the human body that has become pathological should be removed whenever it is possible to do so with a reasonable degree of safety."

Dr. George N. Kreider of Springfield said: "The more I see of these growths the more inclined I am to advise early operation." Dr. Glidden of Danville said: "Under ordinary circumstances I advise operation as soon as the diagnosis is made unless the patient is in an enfeebled condition contraindicating operation." Drs. Collins and Hanna of Peoria said: "Yes, these tumors should be advised operation early before the many and serious complications we so frequently meet occur." Dr. Carl Black of Jacksonville said: "I advise operation as soon as the diagnosis is made; of course, I except extreme and unreasonable cases."

Dr. Christy of Quincy and Drs. Mammon and Guthrie of Bloomington expressed themselves practically the same way. In answer to the question, "Do you advise operation for the fibromata and myomata of the uterus as soon as the diagnosis is made, even before degenerative changes or complications have taken place?" John Deaver of Philadelphia said, "Yes, I do."

Dr. J. B. Murphy of Chicago said: I advise the operation of myomectomy for practically all cases of fibroid in patients in the child-bearing zone, and hysterectomy in those beyond the child-bearing zone, except for the subserous fibroids. I rarely ever do a hysterectomy on a young woman for fibroma. The mortality of myomectomy is less, I think, than that of hysterectomy, although the myomectomy cases are not unlikely to have hematoma unless 24 or 48 hours drainage is used."

Dr. Howard Kelly of Baltimore said: "I never operate on fibroid uteri simply because the woman has a tumor. I operate when the tumor is large or larger than a five or six months' pregnancy. I recommend its removal for size. When it is fixed or when there are any complications, pain, fever, hemorrhage or lateral inflammatory disease I recommend operation. Any serious complication can be detected if the case is under observation, so that there is no need to operate on the smaller movable tumors, 'as soon as discovered.' In this way many are never operated upon. Myomectomy is the ideal procedure, but it is dangerous in inexperienced hands." Dr. A. H. Ferguson of Chicago said: "Yes. I advise early operation in those cases, hysterectomy after the menopause and myomectomy when possible before. Most of the leading surgeons quite generally agree on these points." Dr. Edward H. Ochsner of Chicago said: "It is a little difficult to answer your question categorically, because, after all, every case is a law unto itself. As a general proposition I would say yes; however, there must always be some exceptions. In a feeble old lady past the menopause with a small fibroid causing no symptoms I should not advise an operation, and thus there might be other exceptions to the general rule." Dr. Charles H. Mayo of Rochester said: "I advise operation for fibromata and myomata of the uterus as soon as the diagnosis is made if there are symptoms which are caused by the tumor. Sometimes a delay for two or three weeks may be indicated in the very bloodless. While it is true that many women have small fibromata of the uterus without symptoms, when such tumors are of themselves much larger than the uterus itself and the patient is 45 years of age, knowing that the tendency of such tumors to degenerate or produce malignancy in the uterus which will rapidly invade the tumors, I believe that far fewer lives would be sacrificed by an operation than to allow the tumors to remain after Nature is ready to eliminate the uterus from function. I feel that there is always a risk when the uterus itself is becoming atrophied and is compelled to take with it masses of tissue much larger than itself."

In conclusion I will say that the most serious cases I have met had been advised against operation before the growth was causing trouble. I have often felt that these cases should be operated on earlier, and, upon looking up the latest literature and consulting a number of other surgeons, the conviction is still more firmly established in my mind that these cases should be advised operation as soon as the diagnosis is made in every instance except in those cases in which no reasonable surgeon would advise operation.

DISCUSSION.

Dr. William Cutlbertson, of Chicago:—The indications for operation for fibroid tumor of the uterus, after it has been discovered, are not the same as when we have made a diagnosis of appendicitis. A great many women present themselves for examination for other pelvic troubles, and in the course of that examination we discover the presence of fibroid tumors, and unless these fibroids are sufficient to have caused predominating symptoms, such as pain, displacement of the uterus, or profuse hemorrhages, I do not think we are called upon to operate on them as soon as the diagnosis is made. Every practitioner of experience has had or has seen numbers of cases of comparatively young women who

have had their uteri studded with small fibroid tumors; yet they have not caused great pain or marked symptoms of any kind. The tumors have not been sufficient to cause displacement of the uterus, with accompanying constipation and disturbances of urination; consequently I think we are safe in letting these young women go on and keeping them under close observation.

As far as the pathology of these tumors is concerned, age has a great deal to do in determining the nature of the tumor. For instance, if a young woman, married or otherwise, twenty-six, twenty-seven or thirty years of age, presents herself for examination and we find a fibroid tumor of the uterus, we would not expect to find any great degree of malignancy in that tumor. As age advances the probability of malignancy must be considered. The investigations of Cullen show that sarcomatous degeneration in fibroids of the uterus occurs in less than 2 per cent. of the cases. The researches of Noble, of Philadelphia, quoted by Dr. Stremmel, show carcinomatous degeneration in a larger percentage of cases; but when we consider, on the other hand, the large proportion of cases of malignant disease of the uterus and of the cervix, which are ostensibly caused, according to Noble, by lacerations of the cervix and uterus; then, when we take into consideration the number of cervical tears which have gone on for years and have not produced malignant degeneration, we are perfectly safe in allowing many of these tumors of women, where the tumors are not of very large size, are not causing profuse hemorrhages and pain, or other disturbances, to go unoperated on until after the menopause. If we watch them afterwards, in a large number of instances they disappear and cause no further trouble. The time for operation depends upon the individual case, upon the amount of disturbance locally that is caused by the tumor, and also we have to consider the effect of the tumor on the patient's health and be guided by these considerations entirely.

Dr. Bertha Van Hoosen, of Chicago:—I have been much interested in Dr. Stremmel's paper, and very much encouraged, because I believe he has taken the position of what we would call the radical treatment of fibroid tumors of the uterus. I have never been able to understand why a tumor of the uterus should be looked upon any differently from a tumor of the breast. If a woman presented herself at my office with a tumor of the breast I would not advise electrical treatment; I would not apply glycerin and ichthyol, and I would feel guilty if I did nothing; but would tell her to have that small tumor removed at once, and a section put under the microscope for the purpose of determining whether it is malignant or benign. By that treatment we can catch in the early stages nearly all of the cases of carcinoma of the uterus. It does not do any harm to remove a small fibroid from the uterus or a small cyst from the breast. It is a simple operation, and we know exactly what we are doing. I believe the conditions in the pelvis are exactly the same. We talk much about how we would treat a fibroid or myoma of the uterus, and I think probably we all might agree as to how it should be treated, but I would have grave doubt if any surgeon said that he could make a positive diagnosis as to the malignancy or non-malignancy of any tumor in the pelvis. Last June one of my patients went to a very prominent surgeon because she had a small fibroid. He told her she had a small fibroid not much larger than the end of his thumb, and that if it troubled her at any time she should have something done. I saw her again. She was in Chicago away from the doctor whom she had first consulted. I saw her in January, and I told her she had a number of fibroid tumors. The whole mass of fibroids, perhaps, was as big as a child's head. I told her I thought she had better have them removed because of the pain she had. She had a leiomyosarcoma. I was unable to make the diagnosis when I took out the entire mass. The tumor was carefully examined, and the diagnosis was made by Dr. Wells, of the University of Chicago. These tumors are not very common. We know that these tumors of the uterus produce considerable irritation, but our statistics in regard to carcinomata are entirely changed where we have myoma in the uterus. Carcinoma of the cervix occurs fifteen times more frequently than does carcinoma of the fundus of the uterus. If there is a myoma in the fundus of the uterus we find that carcinoma is four times more frequent in the fundus than in the cervix, which means, at

least so far as I can see, that there is something about the irritation of the myoma that leads to a carcinomatous condition in the uterus. One of the strongest arguments I have heard advanced against operating on these cases has been the finding of so many myomatous uteri in the dead-room. Probably there are just as many patients who have gallstones that are found postmortem, but we do not think of them during life. I am very glad to have heard Dr. Stremmel's paper.

Dr. Stremmel (closing the discussion):—I have very little additional to say, but I think it is dangerous to advise a woman not to be operated on when she has a tumor. I have a patient at present in the hospital who has carcinoma that has passed beyond the possibility of operation on account of having been advised some years ago not to submit to operation for a simple fibroid. That case is inoperable now. If she had not been so advised she would have had it out long ago and would have been saved the tortures through which she is going now. These cases should not be neglected any more than a diseased appendix.

NOTES ON THE TREATMENT OF ACUTE INSANITY.

SANGER BROWN, M.D.

Professor of Clinical Neurology in Medical Department, University of Illinois; Consulting Neurologist, Cook County Hospital; Attending Neurologist, St. Luke's Hospital.

CHICAGO, ILL.

So far as its treatment is concerned acute insanity may be defined as a disease which impairs or destroys the patient's capacity to cooperate with, and indeed not infrequently prompts him to vigorously oppose, those who seek to institute measures intended to promote his cure or comfort; it also disqualifies him from conforming to the conventionalities of social, civil or family life so that some special provisions have to be made for his proper care throughout the course of his disorder. Practically this usually requires the exercise of such arbitrary authority as can best be applied in an establishment specially equipped for the purpose. In reference to their treatment, patients suffering from acute insanity may be divided into two classes. In the first may be included those in whom there is a morbid excess of bodily and mental activity, and in the second those in whom there is a pathologic deficit in these particulars. The former may be boisterous, boastful, blasphemous, obscene, violent and homicidal, the latter apprehensive, silent, hopeless to the point of despair and suicidal. These two characteristics may alternate, if indeed they be not occasionally combined in the same individual. Either excessive or defective activity may be so pronounced, accompanied as they frequently are with persistent refusal of food and insomnia, as to excite serious apprehension of fatal exhaustion.

Acute insanity, aside from that which accompanies general paresis or those cases which from the first show pronounced signs of mental deterioration, tends strongly toward recovery, and the indications for treatment are, therefore, to assist and not retard Nature in her restorative efforts.

Treatment in most cases of acute insanity can only properly be carried out in an institution specially adapted to that purpose, and what I have to say is intended to apply to measures therein employed.

First, cases presenting excessive activity may be considered. It is always desirable that every patient should be treated individually; for instance, if he be noisy he should not be stupefied with drugs because his noise disturbs others; unless, however, special provisions are at hand for his isolation or perhaps more properly insulation so far as any noise he may make is concerned, application of the principle of the greatest good to the greatest number may prevail, and the individual suffer accordingly. Indeed, I may now state that **THE MAIN PURPOSE OF MY REMARKS IS FIRST TO CALL ATTENTION TO THE IMPORTANCE OF HAVING SUCH PROVISIONS IN INSTITUTIONS FOR THE TREATMENT OF INSANITY AS WILL PERMIT THE PHYSICIAN TO REFRAIN FROM ADMINISTERING SEDATIVE DRUGS EXCEPT ONLY WHEN HE BELIEVES THEY WILL BENEFIT THE PATIENT TO WHOM THEY ARE ADMINISTERED**, with practical suggestions for the accomplishment of this object; and, **SECOND, TO EMPHASIZE THE IMPORTANCE OF THE FRESH-AIR TREATMENT OF ACUTE INSANITY**, with hints as to how this also may be carried out in practice. That fresh air is highly beneficial to persons suffering from tuberculosis has been clearly understood for many generations, and no doubt a few physicians have individually made some special provisions for having their patients kept much in the open air. But it has only been in the last decade or thereabout that a well-defined fresh-air method of treatment has been developed and come to be pretty generally understood and made use of; so, too, doubtless individuals have appreciated the value of the principles herein brought forward in reference to the insane and embodied them in practice.

I think them so important, however, that I should like to see their value generally recognized and methods for their practical application perfected and adopted.

Many cases of the active variety of acute insanity are very noisy and wakeful, especially in the early days or weeks of their attack. Certainly sometimes if not generally it happens at the expiration of any definite period as, say, a week; the patient's physical condition will be far better if sedative drugs are withheld than it will be if the physiologic effect of these be maintained. For such patients a room of ample size should be provided; this room should be supplied with forced ventilation so as to keep the air strictly fresh even when one or more persons have to remain in it. In the country, where there are no trees or adjacent tall buildings to deflect air currents, the rooms of an institution may be satisfactorily ventilated by the gravity system by using the basement as an air chamber and providing each room with an independent inlet and outlet flue. Those rooms, however, which are devoted to the care of noisy patients and, therefore, have to be kept closed, especially in the summer months when a gravity system is inactive, should be supplied with noiseless electric fans in the outlet flue. In such a room, 15 by 12 by 11, so equipped, occupied by two nurses and a patient, the air remains perfectly fresh. I have had such rooms at my disposal now for nearly four years, and have come to regard them as almost indispensable in the treatment of certain

cases of acute insanity. Incidentally I would suggest that the plan here outlined of supplying an abundance of fresh air is equal or superior to the so-called outdoor treatment in cases of pneumonia, as it involves no increased liability to exposure either of patient or nurse. My experience happily is limited to one case which occurred in a woman of 38, who made a good recovery while suffering from a very severe attack of acute mania.

The value of keeping a patient in the open air as a means of promoting his physical vigor, sleep, appetite and digestion has been amply demonstrated in the last ten years in the treatment of tuberculosis, and this is, of course, desirable in all cases of acute insanity, though some are so noisy and unmanageable that it is not practicable to keep them much out of doors. For those patients who are orderly enough to properly permit them to remain out of doors I have found open pavilions facing south, with concrete floors and concrete walks leading to them, well suited for this purpose. They are always dry and, therefore, always available. They may be supplied with comfortable lounges, and in the winter foot-warmers with a fuel cartridge may be used to supply necessary heat. It would, in my opinion, rarely be advisable to attempt to have cases of acute insanity sleep out of doors, as their cooperation could not be counted on to prevent dangerous exposure even if they were not noisy.

While I believe the measures above outlined have a very wide application in the treatment of acute insanity, indeed are of cardinal importance, I do not wish to be understood as intending to maintain that sedatives, hypnotics and hydrotherapy are not useful. In regard to the latter I wish to say, however, that, while some form of it may be employed in many cases with marked benefit, its value by no means justifies the advocacy it has received in some quarters in the last few years as a sort of cure-all, nor the expenditure of huge sums for installation of elaborate plumbing which has been made in various public institutions throughout the country. Nevertheless, I maintain that any one who studies his cases closely and has at his disposal such provisions as I have described will, I believe, carry some of them at least through to convalescence without the employment of any medicinal sedative, hypnotic or even tonic, or at any rate he is likely to become more and more abstemious in the matter of prescribing medicinal sedatives and hypnotics. A pretty wide experience with both methods has convinced me, as I have said before, that in most cases of acute insanity when insomnia is pronounced, the patient's condition is likely to be far more satisfactory, at the end of a stated period, if medicinal hypnotics and sedatives are entirely withheld than if they are freely administered. The disease generally runs a course of several months, and the secretions and consequently the metabolic processes are often profoundly deranged by an attempt to maintain medicinal sedation over so long a period. Indeed it is not difficult to conceive how occasionally such medication might determine a fatal issue or, worse, permanent mental impairment in a case otherwise curable. Finally I wish to remark emphatically that an establishment adapted to the treatment of acute insanity should have rooms impervious to noise, and equipped with efficient forced ventilation.

It should also be supplied with open pavilions or porches so as to enable certain patients to spend their days wholly in the open air. I believe the medical profession should advocate the installation of accommodations and appliances suitable to the practical application of the principles above described in public institutions devoted to the treatment of acute insanity.

100 State Street.

PYLORIC STENOSIS IN INFANCY.

F. X. WALLS, M.D.

CHICAGO.

Pyloric stenosis in infancy is a disease of sufficient frequency to merit the attention of every physician. It is difficult to determine in what proportion this disease is encountered among sick infants; it may suffice to say that in my practice I have seen 12 cases during the past five years that have been recognized as pyloric stenosis. Every physician may expect to meet with such cases, and if attention is directed to the striking symptom complex of the disease, and the infant submitted to a careful examination, the diagnosis is by no means difficult. The essential symptom for which the physician is consulted is vomiting and, depending very naturally upon it, wasting. The vomiting is persistent. Most of the cases have been breast-fed and they may have been fed quite regularly, or, if fed artificially, it may have been done intelligently, yet the babe vomits. In this manner the vomiting differs from vomiting that may occur in "dyspepsia," as in the latter condition the diet is usually faulty. Nor are the other symptoms of "dyspepsia" present. The tongue is not white, there is no tympanitic distention of the abdomen and the bowel movements are not loose nor frequent. The vomiting is propulsive. The word propulsive prefixed to vomiting suggests cerebral diseases, but these babies are very bright and alert and present no evidence of any intracranial disorder. The vomiting occurs many times a day, perhaps not after every feeding, but when one or two feedings are retained the subsequent vomitus may be of an unusually large amount so that the mother may tell us the babe vomits more than it eats. In some of the cases the vomiting has ceased for a day or more, but it soon recurs with its usual characteristics. The movements of the stomach that terminate in vomiting are painful to the child, and colic is a frequent symptom. At times the babe senses the relation between ingestion of food, stomach contractions and pain, and refuses, or even cries, when food is offered it. Hunger, however, overcomes its fears and it is only in rare instances that the child refuses its food for a very long time, during which period vomiting may be absent and the disease might go unrecognized.

If the child vomits the greater part, if not all, of the food he obtains it follows that the bowel movements would be very small in amount.

Obstipation is in direct degree with the vomiting, and for a like reason that little food reaches the absorptive part of the bowel the urine is very scanty.

Emaciation progresses apace. The amount of food that passes the stenotic pylorus varies, but it is almost always an amount insufficient to satisfy the body demands, so that the babes must consume their own tissues and they become progressively thinner. If the stenosis yields and allows more food to pass the pylorus the failure is checked and the babe may gain in weight.

These symptoms usually make their appearance some weeks or even months after the birth of the infant; rarely are they present during the first few days of life. For several weeks the babe seems perfectly normal, even making unusual gains in weight, a condition that would be incompatible with any degree of stenosis. The term congenital which is so often applied to the disease may be objected to for this reason. Three out of four cases occur among males. Many times it has been noted that two children of the same parents have this disease. I have observed this in my twelve cases. The emaciation is not peculiar, but such as may occur in any wasting disease. Inspection of the abdomen shows a striking prominence in the epigastric region, in contrast to the flatness of the remainder of the abdomen. If this prominence be observed after the infant has taken its food or while it is nursing a visible exaggerated gastric peristalsis can be seen. It usually begins well over on the left side of the epigastrium, as a wave-like prominence about the size of a lime, which slowly passes over to the right, traversing the entire epigastrium, and sinks beneath the surface in the neighborhood of the right mammary line. Two, or even three, waves may be seen simultaneously passing across in this manner. Such visible gastric peristalsis is a positive indication of gastric stenosis. It could be hardly confounded with the faint vermicular movements of the bowels that at times may be seen in debilitated infants with flaccidity of their abdominal walls.

While the gastric peristalsis is active it may happen that the child will vomit or it may appear to be in pain.

Palpation of the abdomen will often detect a firm, hard tumor-like mass, about the size and shape of the terminal phalanx of the little finger, lying deeply in the abdomen near the median line, about midway between the umbilicus and the ensiform. The stomach tube may reveal the presence of food that has been retained in the stomach a longer time than would occur in health. Three, or even more, hours after the babe has received a feeding the entire amount administered may be recovered by the tube, and it may be discovered that an unusual quantity of fluid can be contained in the stomach, which is greatly dilated. The dilatation can also be confirmed by palpation of the swallowed tube lying along the lower border of the stomach, reaching even below the umbilicus. The examination of the stomach contents adds nothing of peculiar importance. Given an infant with a history of persistent vomiting, obstipation, scanty secretion of urine, progressive emaciation and,

on examination, a distended epigastrium with visible gastric peristalsis, a diagnosis of pyloric stenosis is assured.

The nature of the stenosis, pathologically considered, consists of a hypertrophy of the muscles of the pylorus, and with it, also, a hypertrophy of the muscular coats of the stomach wall. There are three views as to the nature of the hypertrophy. Hirschsprung considers there is a real organic stenosis with a subsequent muscular hypertrophy. Pfannndler thinks there is no real muscular hypertrophy, nor organic stenosis, the appearance of thickening, as well as the obstruction, being due to a spasm of normally developed muscle.

Thompson believes that there is a great muscular hypertrophy which is the result of overwork, and the overwork is dependent upon nervous incoordination. Whatever may be the nature of the pyloric stenosis the conditions that follow in the infant are dependent upon (1) an unduly prolonged closure of the pylorus and (2) unusually forcible contractures of the stomach.

An appreciation of the consequences of pyloric stenosis in infancy can best be reached in my judgment from an analysis of the cases observed by some competent clinician of large experience. The cases reported by Thompson of Edinburgh will suffice. Since 1894 he has seen 41 cases; nine of them were treated surgically, with four recoveries. Of the remaining 32 cases one was under treatment at the time his report was made. Out of 31 cases treated medically 27 died—a mortality of 87 per cent.

These figures are not in accord with the published statistics of some other observers, notably in Germany, yet they tally with my smaller number, so far as the medically treated cases are involved. Of the 12 cases that I have records of, 8, treated surgically, 7 recoveries; mortality, 12 per cent.; 4, treated medically, 3 deaths; mortality, 75 per cent.

Treatment.—When the diagnosis is assured surgery offers the greatest chance for recovery. During the time, however, that the diagnosis is uncertain and perhaps in all cases if the condition of the child will permit it, medical treatment may be carried out, with a view of relaxing the pyloric spasm.

Gastric lavage in many cases will overcome the stenosis, but, unfortunately, not for a very long time. Lavage with normal saline may be performed daily or at such intervals as may seem helpful. Sedatives and antispasmodics have been without avail in my hands. Rest to the stomach, with nutrient enema, has been tried. I have had no success thereby. Large poultices to the abdomen are strongly advocated by Heubner; they are harmless, but temporizing. Regarding the diet, we are told by some to feed small quantities at little intervals; others recommend feeding a large amount at great intervals; some suggest cream mixtures, others a fat-free diet; from such diametrically opposed advice we may conclude that the diet is indifferent when the disease is established. Whatever plan of medical treatment we pursue should be persisted in only so long as unequivocal improvement follows. The most certain sign of amelioration of the stenosis is cessation of vomiting, normal bowel movements and gain in weight. It is certainly unfair to everyone con-

cerned to subject these babies to medical treatment for a prolonged period, during which the babies become progressively thinner and weaker.

The operation of election in these cases seems to be a gastroenterostomy, rather than pylorectomy or devulsion of the pylorus, and in seven of my cases a posterior gastroenterostomy was made. Following is a brief summary of the operated cases:

Case.	Sex.	Age at Onset.	Age at Operation.	Nature of Operation.	Operator.	Result.
1.	M.	3 weeks	3 months	P.G.E.	Van Hook	Recovered
2.	F.	1 month	3½ months	P.G.E.	Van Hook	Died
3.	M.	5½ weeks	2¼ months	P.G.E.	Van Hook	Recovered
4.	M.	4 weeks	2 months	P.G.E.	Van Hook	Recovered
5.	M.	4 weeks	2 months	P.G.E.	Murphy	Recovered
6.	F.	3 weeks	4½ weeks	A.G.E.	McArthur	Recovered
7.	M.	3 weeks	6½ months	P.G.E.	Richter	Recovered
8.	F.	3 weeks	6 weeks	P.G.E.	Richter	Recovered

CASE 1.—Male, born in Wesley Hospital in October, 1905; family history negative; mother nursed the baby for a week and it was fed artificially. About the 25th day vomiting was first reported, which gradually became more frequent until it was noted that the baby was vomiting many times a day every propulsion and beginning to lose in weight. Bowels would only move with an enema, and the result was a small dark movement. When two months old it was examined in the clinic and presented great emaciation. Inspection of the abdomen showed a very distinct gastric peristalsis which could easily be seen at a distance of 30 feet from the baby; on introduction of the stomach tube it could be outlined by palpation following the lower curve of the stomach about one inch below the umbilicus. The pylorus could be felt as a hard mass about the size of a cherry just above the umbilicus slightly to the right of the median line.

Treatment was carried out for four weeks in an attempt to overcome the pyloric spasm. Gastric lavage. Rectal feeding with stomach rest; the many antispasmodics by mouth, poultices to the abdomen, but none of these had any influence on the stenosis and the baby continued to lose in weight. Operation was advised. Operation by Van Hook. Posterior gastroenterostomy. Patient stood the operation very well; was given by mouth a teaspoonful of water a few hours after the operation, and repeated every hour. Second day one ounce was given every two hours and feeding gradually resumed. Good recovery.

CASE 2.—Sent to Wesley Hospital by Dr. McChesney, of Chicago Heights, on March 14, 1906. Babe began to vomit when 4 weeks old and had grown weaker and smaller. In addition to the emaciation there is a distinct prominence in the epigastric region with flatness over the remainder of the abdomen. For a week treatment was carried out in an attempt to correct the vomiting but unsuccessfully; no improvement with nutrient enemata, the weight of the child falling in the week from 7 pounds to 6 pounds 9 ounces. On March 21, 1909, operation by Dr. Van Hook; posterior gastroenterostomy. The baby did not react and died a few hours after the operation.

CASE 3.—Admitted to Wesley Hospital, Oct. 12, 1907. Male, born Aug. 15, 1907. Parents young and in good health. Labor was normal at birth, 8½ pounds. Nursed by mother, and steadily gained in weight until, when it was 4 weeks old, it weighed 12 pounds.

About Sept. 23, 1907 (5½ weeks old) vomiting was noted, and the vomiting occurs every day from 3 to 10 times, the nurse reporting that the baby vomited every particle of food he took. The movements were small and enemata were used. The food was changed a number of times, but to no avail.

Examination.—Emaciation. Negative examination of organs above diaphragm. Abdomen; giving child something to suck, one could see a rounded prominence

about the size of a lime appearing in the left epigastric and slowly move towards the median line, and before it disappeared it was followed by a second wave-like swelling which would pass over the epigastrium in a similar way. To the right of the median line and about midway between ensiform and umbilicus there can be distinctly palpated a very firm body about the size and shape of the terminal phalanx of the little finger, lying very deeply in abdomen and only slightly movable.

Treatment.—Gastric lavage. Bromid and opium by mouth; warm poultices continually applied for two hours. Three times in the 24 hours, a very bland diet was tried for a few days. The baby was losing ground very fast. Operation was performed Oct. 18, 1907, by Dr. Van Hook, anterior gastroenterostomy. Recovery uneventful. Boy now in perfect health, June, 1909.

CASE 4.—Baby sent by Dr. McChesney to Wesley Hospital. Normal birth and did well for about four weeks, when vomiting was noted. Vomiting did not give to treatment; baby growing steadily thinner and weaker. Constipation very obstinate.

Examination.—Emaciated; visible gastric peristalsis and palpable pyloric tumor. Operation by Dr. Van Hook; posterior gastroenterostomy. Uneventful recovery. Now in good health, June, 1909.

CASE 5.—Mercy Hospital. Baby B., 8 weeks old, brought to Mercy Hospital by Dr. Brenner, of Quincy, Ill., Dec. 7, 1907. Born at term and weighed at birth 10 pounds for four weeks, was normal when vomiting began and has been incessant for past ten days; has not had a movement of the bowels except when aided. Shows sign of considerable distress immediately after eating. Baby has lost considerably in weight and strength despite medical aid.

Examination.—Distinct gastric peristalsis can be seen over epigastrium and the enlarged and hardened pylorus can be palpated. Posterior gastroenterostomy performed Dec. 7, 1907, by Dr. J. B. Murphy. Recovery rapid and uneventful.

CASE 6.—Born at St. Luke's Hospital. Service of Dr. Gay, Feb. 14, 1909; weight, 7 pounds 6 ounces; lost a few ounces after birth, which was regained by loss of first week and baby weighed 7 pounds 8 ounces. The first vomiting recorded occurred when baby was three weeks old, and from that time it persisted daily. The stomach was washed, the diet altered in many ways, but to no avail. Gastric penetration was quite evident, though no pylorus could be palpated. On March 15 the baby weight having steadily fallen to 6 pounds, it was operated upon by Dr. L. L. McArthur and an anterior gastroenterostomy done. Vomiting ceased immediately after operation and on April 5, 1909, baby was discharged from hospital; weight, 7 pounds 4 ounces.

CASE 7.—Baby D., reference of Dr. Hendricks, Green Bay. Born Aug. 27, 1908; birth weight, 8 pounds. For a few weeks was normal, then began spitting up his food more and more until vomiting was a persistent symptom. He was taken off the breast and tried on one after another. Different food with no improvement in the symptoms. He had considerable pain and marked obstipation. On Feb. 12, 1909, was admitted to Wesley Hospital at the age of 5½ months. Weight, 8½ pounds. Examination negative, save as regards the stomach. There was some fulness in the epigastrium with sinking of the remainder of the abdomen. While feeding the baby and watching the abdomen large gastric waves could be seen distinctly passing across the epigastrium. Gastric lavage demonstrated a dilation of the stomach. With careful dieting and daily lavage there was a distinct improvement in the general condition, the weight ascending to 9 pounds in a week and the bowels moved daily without any aid. Baby sent home as improved. But almost immediately the vomiting recurred and baby began to fail, and March 1 a posterior gastroenterostomy was performed by Dr. Richter. The operation was well borne and babe gained an ounce a day for thirty days. Symptom of stenosis then recurred and a second operation was performed, break-

ing up some adhesions around the stomach and the babe began to improve once more and is now reported as progressing very well.

CASE 8.—Baby L., fourth child in family. Family history, a year ago lost a baby at age of 6 months with history of persistent vomiting and extreme emaciation. At birth the babe was normal and did well for two weeks, when vomiting began and has been persistent. Gained one pound in first two weeks; no gain. First saw the babe when three weeks old. Mother is nursing babe. For a week tried with sedatives and digestants to allay the vomiting, but to no avail. Then washed stomach with normal saline. On filling the stomach with fluid very evident gastric waves could be seen passing across epigastrium. After the stomach washing for two days there was no vomiting, but then it recurred. Stomach washing again resorted to and no vomiting for thirty-six hours. Baby was taken from mother's breast and fed on small amount of whey every three hours, with no relief. In view of the death of a child under similar conditions the father asked for surgical aid.

Operation.—May 22, 1909; operator, Dr. H. M. Richter. Stomach greatly distended and the pylorus converted into a hard cartilaginous-like mass. Posterior gastroenterostomy made. Little shock from operation. Vomited the day succeeding operation but not since. Has gained a pound in weight in two weeks on mother's milk and seems in excellent condition.

DISCUSSION.

Dr. Alfred C. Cotton, Chicago:—Mr. President: I have nothing to add to this very admirable paper, whose author has given us such a careful and succinct description of the symptomatology and physical signs, but I think it is my duty to go on record in regard to the medical treatment of these cases, and particularly as to the method of feeding. These cases are not rare, as is evident by the record of the essayist. Everybody has seen them, but not everyone has recognized them. Many of these cases pass as cases of marasmus to a fatal termination, no post-mortem examination being made, and after having fatal cases we are prompted to inquire if these cases of so-called marasmus which terminated fatally were not instances of stenosis of the pylorus. That there are widely varying degrees of pyloric stenosis is amply evident from the outcome of the cases. It was not many years ago when we considered congenital pyloric stenosis as fatal, and we were apt to think all such cases were congenital. Dr. Walls brought out very clearly the point that many times the child will appear normal and gain in weight. In other words, it is a very promising child up to the second, third, and even fourth week, then there is some acute attack of indigestion which is usually attributed to dietetic errors, and I have no doubt is precipitated by dietetic errors, bringing on the first symptoms of a disorder that ultimately appears to be stenosis of the pylorus. It is evident, too, that many of these cases recover. It is difficult to determine the degree of stenosis. The essayist noted that exaggerated peristalsis, with profuse vomiting, is indicative of a degree of stenosis. He mentioned the absence of fecal matter from the stools. But some of these cases with marked stenosis of the pylorus, in which we have an enormous distention of the stomach, with the vomiting of a large quantity of material, which the nurse or mother will tell you is three times as much as the child takes into its stomach, with exaggerated peristalsis, and absence of fecal matter, do recover temporarily. It seems to me diet has something to do with the recovery, and particularly the apparent conditions as to the quality of the food must be considered, as well as the quantity and the frequency of feeding. I have known some physicians to say, "Let us give the child a good meal; he is going to vomit anyway, and if we give him plenty he will absorb enough of it to nourish him." But with overfeeding as to quantity at the time, I think there is a tendency to induce gastric dilatation or gastropnoia, and extreme dilatation with gastropnoia is very unfavorable in this condition. It militates against the emptying of the stomach where there is

not complete stenosis of the pylorus. I would urge, therefore, that we feed these patients at short intervals in small quantities, and if possible prevent this dilatation. Lavage is very valuable, and lavage performed as often as five or six or even seven or eight times in the twenty-four hours. I have seen valuable results from stomach washing with a weak solution of bicarbonate of soda to precede the ingestion of food in the majority of cases. One thing that has served me successfully in feeding these little patients is to feed them frequently at short intervals, always after lavage.

Dr. W. C. Bouton, of Waukegan:—I had a case about four months ago where I was in doubt as to the diagnosis at the time, but after hearing Dr. Walls' paper I am inclined to consider it a case of moderate pyloric stenosis. The baby was four months old; it had been fed almost everything in the catalogue. The mother stated that the child had been vomiting for some time and could not retain its food. I thought that by putting the child on a proper method of feeding it would probably retain its food, and I proceeded to try first one thing, then another, as recommended by the leading pediatricians. I began with the use of barley water and egg water and the child would not retain them. Then I tried simply boiled water and it could not retain even that. I tried giving the stomach rest for twelve hours, thinking that would quiet the irritability. It made no difference; the child vomited just the same. I tried peptonized milk with the same result. The child was rapidly losing weight. I saw the child every day for two weeks, and it still continued to lose flesh. They were poor people and I told the mother that it seemed a useless expense to continue my services. I told them I had done everything that I could and they had received the best advice I could get from our modern text-books on pediatrics and that it seemed to me there was nothing more to be done; that, frankly, unless there was a change for the better, the child would soon die. I did not see the child again for several days, when the mother informed me that the child had been able to retain a little nourishment. The last thing I tried was modified skimmed milk. After a few weeks I saw the child again and it gained about a pound, and a few days ago, when I called, I found that the child weighed about fifteen pounds. When I saw it first it weighed about seven pounds. After this almost continuous vomiting for two or three weeks in spite of everything that could be done for it and without any apparent reason for the change, the child began to improve and has kept on gaining steadily. It seems to me that in this case there was a moderate degree of pyloric stenosis.

Dr. Walls (closing the discussion):—Vomiting is but one feature of the symptom-complex in pyloric stenosis. Vomiting is one of the most common symptoms we meet with in young children. If a child is persistently vomiting, we think of the possibility of the vomiting having an organic basis, such as a pyloric stenosis.

I would not like to pronounce Dr. Bouton's case as one of pyloric stenosis, although it may have been. In the cases I have had under observation I have submitted some of them to prolonged medical treatment, placing them on a moderate amount of this, that and the other food, but it has been indifferent. I have never suggested that any one of these cases should go to operation until some form of medical treatment had been tried. Thompson is a pediatrician of large experience, and I took his statistics as probably representing what would happen in these cases if treated medically, and certainly twenty-seven deaths out of thirty-one cases treated medically is a formidable mortality. Surgery seems to me to offer these children greater possibilities of recovery than are offered by medical treatment. If we submit them to medical treatment and find there is very little or no improvement, and if a diagnosis of pyloric stenosis has been established, I think they stand the best chance of recovery with surgical treatment.

A GENERAL CONSIDERATION OF THE NEEDS OF CRIPPLED CHILDREN, THEIR TREATMENT AND THE RESULTS TO BE EXPECTED.*

JOHN RIDLON, M.D.

CHICAGO.

Some three months ago Dr. Dicus asked me to read a paper, not to make an address, before this society. I assented on condition that he name the topic in orthopedic surgery that in his opinion would be interesting to the members of the society. I heard nothing from him until he telephoned me ten days ago and told me that I was expected to give an address this evening on some topic of general public interest. Ten days is too short a time for any busy practitioner to gather facts and statistics upon which to found an argument and prove his conclusions.

I would have been glad to have spoken to you upon the need of a state institution for the treatment and education of the destitute crippled children of the state of Illinois, and I had arranged my ideas somewhat along those lines, for there is a crying need of such an institution. But four days ago I learned that Mrs. Lysander Hill, a member of the Board of Directors of the Home for Destitute Crippled Children, was to address the ladies of Princeton on Monday, yesterday, on practically the same subject. To save the ladies of my audience from a repetition of facts I must again readjust my ideas.

All this is in the way of excuse for myself and as preliminary to begging of you a kindly toleration, a mental attitude as generous and uncritical as the mental attitude one must have who submits himself to treatment by Christian Science, the Mind Cure, of the Emmanuel Movement, and such like. In this connection I may perhaps be permitted to tell you of a friend, an eminent practitioner of medicine of an eastern city, whose wife at the age of 48 or 49 sought relief from her growing nervous irritability from the Rev. Dr. Worcester, rector of Emmanuel Church in Boston, and head of the so-called Emmanuel Movement. When I showed some surprise that my friend would suffer his wife to take up with such an absurd fad he defended himself by telling me this story:

Well, said he, I had for a patient a clergyman on the verge of nervous prostration. His wife was 48 or 49 years old. She was nervous and irritating and nagging most of the time. His children were well grown and, like the children of many clergymen, giving him no end of trouble. He was having trouble with his vestry and they were not paying him his salary as agreed. And the soprano in the choir and the organist of the church were quarreling, and he was having no end of trouble. Well, said the doctor, I treated his nervous prostration by all the known and approved methods of medicine, but he got no better. So one day I said to him:

"Dr. Brown, I am going to cure you by mental science." "What nonsense," he answered. "How can you expect to cure a man like me

* Read before the North Central Medical Association at Princeton, Illinois, Dec. 1, 1908.

in that way?" "Well," I answered, "I am going to cure you and by mental science." "And what do you expect me to do?" he asked. "This," I answered, "I want you to have your watch carefully regulated. Then I want you each morning to go down to the railroad station and have your watch inspected by the inspector of the trainmen's watches. Then I want you to keep careful account of the time and on the minute of every half hour you are to stop whatever you may be doing and wherever you are you must say audibly, 'I don't care a damn.'"

So while you are listening to my wandering remarks hold yourselves in this generous attitude and from time to time as your attention wanders say to yourselves the magic formula which cured Dr. Brown.

I think I need not define what we mean by crippled children. Broadly, they may be divided into the following classes: 1. Paralytics. 2. The rachitic. 3. The congenitally deformed. 4. Those suffering from chronic joint disease.

First. The paralytics make up the greater number, and may be divided into the cerebral and spinal cases. The cerebral cases are comparatively few when compared with the spinal cases, and fortunately so, for most of the cerebral cases have some mental obliquity, at times amounting almost to idiocy. The results of the treatment of these cases depends upon the mental condition. If the child is intelligent enough to understand directions as to physical movements and exercises and tractable enough to make an earnest effort to do as he is directed the results of treatment will be well worth while. The treatment consists of lengthening the tendons of all shortened muscles either by simple tenotomies or more elaborate surgical procedures, retaining the limbs in plaster splints for a short time, and then daily massage, passive movements, and active physical exercises performed at word of command, to be persistently continued for from one to two years. But to operate without the assurance of the long-continued after-treatment is useless. The spinal cases are mainly the result of acute anterior poliomyelitis. These cases are ordinarily called infantile paralysis, and we used to believe that the disease attacked only infants. But now we know that older children suffer as frequently as infants, and that it is seen in adolescents and adults and occasionally in old persons. The oldest case coming under my observation was a lady 62 years old. It usually occurs as isolated instances, but occasionally as epidemics. The people should know that there are no absolutely certain diagnostic symptoms at the onset; that any physician may be unable to make a diagnosis for several days, or may make a wrong diagnosis; that even if a correct diagnosis is made at the onset nothing can be done to cure or limit the disease or prevent the paralysis, and that while very few and perhaps none die from the attack, not more than one case in a thousand ever fully recovers. The treatment consists in the prevention of deformity, the correction of deformity in neglected cases, the use of braces to supplement muscular defect, and massage and exercises to maintain nutrition and restore function to those muscles whose nerve supply has been inhibited and not wholly destroyed.

Second. The rachitic deformities, such as bow-legs and knock-knees, are on the increase, and are no longer confined to the crowded, dark and damp quarters of the city poor, where the overworked mother nurses the child for a few months and then feeds it on whatever food happens to be upon the family table. While most of the cases of rickets still come from the poorer and more ignorant of our foreign population, we, nevertheless, do find rickets among the well-to-do and educated classes, rickets due to inherited syphilis, to any and all of the proprietary infant foods, to sterilized and pasteurized milk, and to milk that has been mutilated by being run through a cream separator. Rickets is a disease due to mal-nutrition. It may be, and often is, recovered from without the development of serious bony deformities. It is probable that some slight cases of bow-legs and knock-knees are recovered from without treatment by braces or by operation, but I have never seen such a case. A few slight cases recover when treated by braces, but all aggravated cases must be corrected by operation, either osteotomy or osteoclasts.

Third. Congenital deformities are very various in their manifestations, but the two classes that mainly interest us are the congenital club feet and the congenital dislocations of the hip. The congenital club feet are mainly of the equino-varus variety. There are a few cases of congenital calcaneo-valgus. Of these I have seen two in 30 years that required operation; all others were rapidly corrected by manipulation and a simple retention splint. The cases of equino-varus, however, run all the way from the slight case which can be corrected in a few months by simple hand-stretching to the case with a wedge-shaped astragalus that can only be permanently corrected by a mutilating operation; namely, the enucleation of the astragalus. However, more than 90 per cent. of the cases can be cured by the operation which I usually employ; namely, the forcible modeling of the foot by the hands over the wedge-shaped block, supplemented in some cases by subcutaneous tenotomy of the posterior tibial tendon and anterior half of the inner lateral ligament of the ankle, and occasionally division of the astragalo-scaphoid capsule or plantar fascia. This to correct the varus deformity, indeed, to over-correct it. Occasionally in adult feet it is necessary to use the osteoclast in place of the hands and wedge block. Then the antero-posterior deformity is attacked by a tenotomy of the Achilles tendon and a forcible stretching or tearing of the posterior ligament of the ankle joint. Perhaps there may be cases where Phelps' open operation is demanded, but I have not seen such a one among my last two hundred cases. To be sure, in four or five instances I have, while modeling the foot by hand, torn the foot along the line of Phelps' incision. But, however the deformity may be corrected, or better, overcorrected, the treatment of the club foot has only just begun.

The success of the treatment depends fully as much upon a perfect retention of the corrected foot for from four months to four years, as the operation which gives a perfect overcorrection. In the hands of most men the best retention dressing is a heavy plaster-of-Paris boot from the toes to the knee. In this the patient walks after the first ten days.

Braces, either for correction or for retention, ordered from an instrument maker in a distant town, are worthless. Unless the surgeon can construct the brace himself or have it constructed under his personal supervision by the blacksmith and the harness maker or shoemaker, he will be wise to use no brace, but place his dependence upon plaster-of-Paris. I am often asked what age should be chosen for the beginning of treatment, and I answer that the earlier the treatment is commenced the easier it will be to correct the deformity, but the more difficult will it be to retain the foot in the corrected position. I always encourage the mothers of these children to stretch the foot by hand many times a day from the earliest infancy, and I occasionally put on a removable plaster splint, but I do not like to operate or do very much myself until the child has learned to walk well. By that time the skin has become tough enough to stand some punishment and the foot has grown large enough to handle and to hold in a plaster splint, but the important thing is that we have the advantage of the child standing on the feet in the corrected position and treading out the deformity in walking. A most important thing in these cases is the diagnosis of a cure. A case is not cured, and is likely to relapse, as long as the released foot tends to drop back into the position of the original deformity. Cases treated as I have suggested rarely relapse. When they do it is usually due to the shape of the body of the astragalus, it being wedge-shaped instead of cuboid. When it is so extremely wedge-shaped that the tibia articulates with the calcaneum at the back of the ankle joint, enucleation of the astragalus is necessary to insure a permanent cure.

Since Professor Lorenz came to this country six years ago to operate on the child of a Chicago multimillionaire for a congenitally dislocated hip, and incidentally for a fee of \$30,000, both the public and the medical profession have been interested in the subject of congenital dislocation of the hip. There has been much misunderstanding of the subject, both from the sensational reports in the newspapers and the deliberate misstatements of the facts.

A congenital dislocation of the hip is one where the head of the thigh bone is found to be absent from its socket in childhood without the child having received any injury of sufficient severity to cause a dislocation at a normal hip joint. We may with reasonable certainty assume that some of these hips are not in place before the child is born. We know that some are not in place when the child is born. We know that some so-called congenital dislocations can not be diagnosticated as such until the child has walked for some time. Then we know that some hips that are apparently normal for from seven to fourteen years become dislocated, without traumatism, by being used with the leg held in extreme adduction, that is to say, the femoral head leaves the acetabulum and passes backwards and upwards, or may pass forwards and upwards, when the weight of the body is supported with the limb rotated outwards and hyper-extended. We know also that some hips in adult life suffer dislocation from a traumatism, the like of which produces fracture of the neck of the femur in other cases. In a word, hip joints vary from the perfect

hip that will break before it will dislocate, down through those hips that dislocate from injury, those that dislocate without injury when used in an unusual position, those that slip out when the child begins to walk, those that slip out at birth, those that slip out before birth, to those that were never in place at any time.

Bearing these facts in mind it should not be difficult for me to convince you that some hips will be as good as if they had never been dislocated, or about as good, when they have been replaced; or, at any rate, their bony relations will be anatomically perfect. That there are other cases that can be retained in place only with great skill and good judgment. That there are other cases that can not be retained in place by any operation or by any means, because of the anatomical abnormalities in these cases. When subjected to a bloodless replacement in only a very few is the cartilage of the femoral head actually in contact with the cartilage of the acetabulum. This is because of the shape of the head, and the shape of the acetabulum, the hour-glass shape of the stretched capsule of the joint, the pocket shape of the capsule covering over the lower half or two-thirds of the acetabulum, and the lengthening and hypertrophy of the ligamentum teres. In the vast majority of cases operated upon the best that we can honestly say at the time of the operation is that we have placed the head of the thigh bone in the opening of its socket, and that we hope with use while it is retained in that position by the plaster splint that it may so far enter the socket and deepen it that it will remain there when the splint is removed.

And what is really the result? The facts are that about half of them remain there, and the others go forwards and upwards into a position where the patient stands straight and walks well. The percentage of perfect results depends upon luck in any small series of cases and on the experience and skill of the operator, for he who stretches and tears muscles and ligaments unnecessarily in effecting the replacement, as Lorenz did when he was in this country, will have a large percentage of "good" and a small percentage of "perfect" results. I have lost no opportunity to investigate the results of the cases operated on by Lorenz in this country. I have reports from Denver, San Francisco, Los Angeles, St. Louis and Rochester, N. Y., and have personally examined cases in Chicago, Minneapolis, Philadelphia, New York and Boston, and I think that 20 per cent. is a generous allowance for the "perfect" results that he had in this country. To the newspapers Lorenz claimed 80 per cent. of perfect results; to the doctors he claimed only 50 per cent., and that per cent. he has probably reached in the work in his own clinic. But the men who claim 100 per cent. are the men who have had but one case, or men who do not know when they obtain a "perfect" and when they obtain only a "good" result, or they are—liars. Generally they are liars.

In operating upon these cases the age plays some restrictive part. Generally a bilateral case older than 5 years should not be attempted, though I have had a perfect result in one of 10 years. Generally unilateral cases older than 7 years should not be attempted, though I have replaced three at 13 years. The age, however, plays a less important part than the

extent of the upward displacement of the femoral head. A beginner ought not to attempt a case having more than 1 inch of upward displacement, and no one should attempt a case where the upward displacement is more than 2 inches. Generally speaking, the manipulation for effecting replacement of a congenitally dislocated hip should be to carry the femoral head into the acetabulum by way of the cotyloid notch, and with as little stretching and tearing of the soft parts as possible. By this method the retention of the replaced head will be much more certain, though the convalescence after the removal of the splint be somewhat delayed.

By doing the cutting operation of Hoffa one may make sure of a socket large enough to receive the femoral head and know that the head is in place, but the operation weakens greatly the support from the soft parts about the joint, and unless a pretty firm ankylosis results the head is quite as likely to slip out as after the bloodless operation. When a perfect result is not obtained from a bloodless replacement, one has to choose between having a stiff hip from a cutting operation, or a good range of motion with about an inch of shortening, which is the ultimate result of the anterior and supracotyloid transposition of the bloodless operation.

Fourth. Most chronic joint diseases are tubercular, although we now recognize both rheumatoid arthritis and gonorrheal joint disease in children. Tubercular joint disease is practically always secondary to tuberculous glands in the chest or abdomen. The infection is only occasionally inherited—it is practically always contracted from food or from contact with other tuberculous persons, mainly those having pulmonary tuberculosis. Most tuberculous joint diseases cause so much destruction of bone that greater or less permanent stiffness and shortening result. Perhaps 5 per cent. or 10 per cent. under efficient treatment regain normal function without shortening. The principles of treatment are, in a word, protection to the joint. Protection against motion, protection against weight-bearing, and protection against the involuntary muscular spasm that is very troublesome in some cases. This protection is to be had in some cases by rest in bed, by traction devices, by braces, plaster and other splints, and by crutches when the joints of the lower limbs are affected. The importance of the best possible general hygiene, and life in the open air for those running a temperature, is as great as in cases of pulmonary tuberculosis. About half of the cases of joint tuberculosis are complicated with abscesses. Of these the majority go on to spontaneous opening and evacuation unless opened by the surgeon. A certain number disappear without opening when the diseased joint receives efficient treatment. Those abscesses that open spontaneously or are opened by the surgeon usually result in sinuses that go on discharging for months and oftentimes for years.

Recently considerable interest has been shown both by the profession and by the laity in the new bismuth mixture. Some year and a half ago Dr. Emil Beck, of Chicago, injected the sinus of an old psoas abscess arising from tuberculosis in the dorso-lumbar spine for the purpose of

determining the length and course of the sinus by means of an *x-ray* picture. He used one part of subnitrate of bismuth and two parts of vaselin, sterilized, and then liquefied by heat, injecting it into the sinus with a sterile, blunt-tipped, glass syringe. The picture obtained by the *x-ray* showed the sinus to be inoperable. To the surprise of every one connected with the case the sinus soon healed without further treatment. This mixture is known as the "No. 1" mixture. Other cases were tried but with less satisfactory results, the mixture running out of the sinuses. Then Dr. Beck made his mixture "No. 2," consisting of 5 parts of white wax, 5 parts of paraffin, 30 parts of subnitrate of bismuth, and 60 parts of vaselin. These are melted on a water-bath and mixed, and then sterilized. The mixture is injected as before. It rapidly solidifies at normal body temperature, but softens and is discharged at a fever temperature. So that if an infected pocket of the sinus should chance to be plugged up the plug melts down and is discharged before any serious harm results.

Immediately after Dr. Beck made his first report we took up the work at the Home for Destitute Crippled Children, and have used the treatment in over 50 cases. Our results show from 40 per cent. to 50 per cent. of the cases close up within two or three months. A few of these open up again later on. A few of the remaining cases are made worse, either by plugging up of infected pockets or by causing sloughing of the skin covering the original seats of the abscesses, and the treatment has to be discontinued; a considerable number appear to be uninfluenced by the treatment. In a word, the treatment is about half as good as Dr. Beck thought when he made his first report, and about twice as good as any other treatment. When one has had some experience it is possible to increase the percentage of cures by treating only carefully selected cases. In our work we have been careful *not* to select our cases in order to obtain such results as any man, no matter how small his experience, may reasonably expect to get.

And now just a word about crippled children in general in the state of Illinois and their needs. They need special and prolonged care for years in order to obtain the best results, many of them need care for as long as they live. The majority of crippled children are destitute, or at least their parents are too poor to give them the long and expensive treatment, or even to pay their board all these years in an institution. All of them need to be educated, and most of them need special education to meet their defects and enable them to be self-supporting. The state of Illinois provides in some measure for its mutes, its blind, its epileptics and its feeble-minded, but it provides no place for its destitute cripples; not one cent for their treatment or their education. A destitute crippled child here in your town can obtain efficient treatment in this state only in Chicago, and there only when some one pays the charges for board and the cost of any apparatus that may be needed. Nothing need be paid to the surgeons for their services. But even then there is no provision for a general or a special education for the child. Nothing educational is done for the child to make him self-supporting. In the Home for Destitute Crippled Children in Chicago the children who can not

walk receive some little educational training. Those that can walk a half a block go to the Spaulding School, a special school of the Chicago school system, where they obtain the training of the ordinary graded school and some little work in so-called "manual training." The school has space for about 100. At the Fallon School on the south side in Chicago there is a room for some 30 cripples.

The Home for Destitute Crippled Children, by crowding, has beds for about 80, and can care for some 2,000 out-patients each year, provided it can raise the money. Only this in a city like Chicago. The Hospital for the Ruptured and Crippled in New York has some 200 beds and cares for about 5,000 out-patients a year. The Orthopedic Hospital has some 100 beds and cares for about 4,000 out-patients, and has a country branch. Then there is a State Hospital for Crippled Children.

The state of Minnesota spends some \$10,000 a year in caring for its destitute cripples in a building in connection with the City and County Hospital in St. Paul.

The state of Maryland gives \$3,000, and the city of Baltimore \$3,000 yearly to the Hospital for Crippled and Deformed Children in Baltimore. But when the representatives of the people of Illinois, assembled at Springfield, are asked to do something for the destitute crippled children of this state they answer: Crippled children do not represent any votes.

RHYTHMICAL INFLATION OF THE LUNGS IN RESUSCITATION.*

JOSEPH A. CAPPS, M.D., AND DEAN D. LEWIS, M.D.

CHICAGO.

(ABSTRACT.)

Rhythmical inflation of the lungs for the purpose of resuscitating an animal overcome by an anesthetic has been employed by physiologists for many years.

The method has been advocated for the same purpose in human beings by Fell, O'Dwyer, Matas, Kemp and Gardner, and others, but has never gained any popularity. The various methods of artificial respiration depending upon compression of the chest are almost universally employed in preference by physicians and surgeons. The neglect of the direct inflation method, which we believe to be most useful, is partly due to unwarranted criticism.

In this paper we will consider the inflation method, its advantages and disadvantages, and record our own experimental observations.

The objections offered to the inflation method are:

1. The danger of rupture of the lung from excessive pressure and the development of pneumothorax.

* Read at the Fifty-Ninth Annual Session of the Illinois State Medical Society, Quincy, May 18, 1909.

2. The danger, through overpressure of air, of disturbing pulmonary circulation, lowering the systemic arterial blood pressure or of stopping the heart.

3. The danger of interstitial emphysema.

4. The danger of infection of the lung and pleura.

AUTHORS' EXPERIMENTS.

In a series of eighteen experiments the following routine was carried out: A dog was chloroformed until both respirations and heart beat had ceased from one to three minutes. Then a hard rubber tube was slipped through the larynx into the trachea and, by means of a pump, air was forced fifteen to twenty times a minute into the lungs. A T tube in the rubber connection provided for the escape of air between inflations and also controlled the pressure of the air during inflation. No precaution was taken to filter the air. In addition to this artificial respiration rhythmical pressure over the heart was often practiced. In unresponsive cases 15 minims of the 1 to 1,000 solution of adrenalin were injected directly into the heart itself to provoke the muscular contractions.

These efforts at resuscitation were successful in thirteen of the sixteen cases. One to three weeks later these animals, with one exception, were in good health. Postmortem examinations were then made and the lungs examined in gross and microscopically.

Capillary hemorrhages were present in two cases. Half the cases showed a marginal emphysema of moderate degree. This seemed to cause no inconvenience to the animals. Pneumothorax was never present. Infection of the lungs or pleura did not occur in any case.

A slight initial lowering of the systemic blood pressure was usually noted, but thereafter the pressure seemed to be steadied and supported by the rhythmical air inflations. We concluded, therefore, that the dangers of this method have been overstated and in reality are slight.

What advantages does direct inflation possess over the method of compressing the chest?

Schafer has computed that in a healthy man the air exchange in a minute is about 5,850 c.c. and the tidal air at each respiration about 450 c.c. He clearly demonstrated that by the Sylvester, Marshall Hall and Howard method the air exchange is inadequate. By his own prone posture method the air exchange is sufficient.

The superiority of the Schafer method for resuscitation in drowning is unquestioned. But in the collapse from anesthesia during an operation the method has grave drawbacks. With a gaping laparotomy wound, the surgeon hesitates to turn the patient on the belly and to exert powerful pressure on the lower thorax. Should a pleuritic effusion or emphysema be present, these movements might force fluid through the mediastinal membrane into the opposite pleural cavity. Moreover, we have seen hemorrhages in the lung result from such manipulation.

Direct inflation of the lung, on the other hand, is capable of maintaining with ease the normal respiratory exchange and if desired may far exceed this amount and thus rapidly carry off the chloroform vapor.

Another advantage of the inflation method is that the heart and circulation can be watched and measures for restoration of the heart action can be conveniently performed.

DISCUSSION.

Dr. John M. Dodson, of Chicago:—Mr. President: I want to ask Dr. Capps a question. It has been a great many years since I read Dr. Fell's article, but I remember one curious phenomenon that he found in a few individuals who were resuscitated from opium narcosis. After the artificial respiration had resuscitated the individual and restored the natural respirations, respiration had to be kept up for many hours, I think for two or three days, before the individuals breathed for themselves. I wondered if such an experience has been met with in these experiments on animals. It was in opium narcosis, and after the opium was eliminated, and no explanation from that source accounted for it. Apparently, there was established, temporarily, an inability on the part of the patient to breathe for himself.

Dr. Capps (closing the discussion):—I understood from the reading of Dr. Fell's experiments that in the case in which artificial respiration was carried on so long, it was done because the case was one of opium poisoning, and in opium poisoning, as is well known, the chief effect of the drug is to paralyze the respiratory centers. I do not think that animals or human beings will long fail to resume normal respirations because artificial respiration is being carried on. In fact, in animals we have frequently continued artificial respiration after the animal started to breathe, for one or two minutes, until the breathing was deep and normal.

A STUDY OF CONTEMPORARY WORKMEN'S COMPENSATION.*

W. H. ALLPORT, M.D.
CHICAGO.

FIRST PAPER.

The writer makes no claim to having prepared these papers from a purely medical standpoint; in fact, most of the aspects of the conditions discussed in the following pages are altogether legal. None the less, a knowledge of those conditions which inevitably arise in consequence of industrial injuries, and of the methods which the world is adopting to cope with them, is of vital importance to the physician who would keep in touch with the society in which he lives. Such knowledge properly employed is bound to give him, not only keener zest for correct and observant practice, but also a broader sense of his duties toward both the patient and any corporation he may happen to be serving.

The reason, therefore, for the presentation of such a subject by a medical man in a medical journal is sufficiently obvious not to require farther comment or excuse.

Syllabus.

Attention is invited—but not necessarily in the order laid down in the syllabus—to the following aspects of the subject:

* The synonymous terms Workman and Employé are here used in the sense defined by the English Workmen's Compensation Act of 1906, q. v.

The term Compensation is used in the sense implied in the same Act, i. e., a recompense, or *solatium*, for disablement, and not a wage for service.

1. The development and some of the changing features of contemporary law in so far as the same relates to injuries to workmen.

2. Certain common law doctrines by the use of which a large body of otherwise humane and intelligent lawyers—usually actually or prospectively in the employ of corporations—still thinks the ends of justice are best attained. Certain weak points in these same ancient but still operative doctrines, where many of the best modern lawyers think change is impending and highly desirable.

3. The two methods by which these changes are evolving themselves:

a. The European or Constructive method, based on the principle of a scientific plan of advance through legislative betterment of the *modus vivendi* between employers and workmen.

b. The American or Destructive method, based on the principle of prohibitive enactments, leveled only at the most flagrant encroachments which the employer has been heretofore enabled to make upon the personal rights of the individual workman under cover of the common law.

4. The English Laws.

5. The German and Continental Laws.

6. The United States Federal Laws.

7. State Laws of the United States.

8. The forces operating toward and against the enactment of Workmen's Compensation Laws in the United States.

9. Probable methods by which such laws will eventually reach the statute books.

I.

It must be quite apparent, even to the casual observer, that the conditions of life and law affecting the relation of Master and Servant have changed during the last generation through no uncertain tendency, and more than by a natural and gradual progression. This progression *per saltem* has been due especially to the substitution for the slow labor of water and of the hand, of rapidly moving machinery driven either by steam or electricity: and generating destructive as well as constructive energies of enormous power, often capable of transmission over paths and distances not contemplated at their point or origin.

To satisfactorily adjust the problems produced by these new and terrible potentials—owned and at the service of employers, and under control largely of employes—we find that not only has statutory law been specialized and complicated, but many of the so-called fundamental principles of common law are no longer found to meet present day exigencies. Certain of those patriarchal axioms by which courts are wont to season the law are rapidly finding their way into the scrap heap, because they do not contain enough of the leaven of justice to keep them whole-some under modern conditions.

Many examples of this process of evolution will readily occur: Thus, the old adage, that "he who handles machinery must take the consequences"—*volenti non fit injuria*—has given way to safety appliance acts, factory laws, shop inspectors, employes' minimum age limits, and other positive methods of enforcing protection of those who earn their livelihood as operators of machinery.

The old "Common Employment" or "Fellow Servant" plea¹ has become worn so threadbare by seventy years of common-law service in the interest of corporate masters, that even the myopic legal eye has

1. First laid down by Lord Abinger in 1837 in his decision in the Priestly case and restated in 1842 by Chief Justice Shaw of Massachusetts in the Farwell vs. Fitchburg Railroad case.

begun to see that the cloak is too meager and too full of holes to longer shelter the overgrown modern corporation against the claim of the employé injured through no carelessness of his own. Many lawyers are even disrespectful enough to affirm that Abinger's decision and Shaw's reinforcement of it were villainously and perniciously bad law from the start. We may concede, perhaps, that such judge-made law may have done very well to defend masters against house servants, or to meet those primitive conditions where every employé saw and was seen by every other, and all worked under the direct eye of the Master: but it can hardly convey exact justice to the family of the dead engineer who is killed through a faulty train order issued by a dispatcher a hundred miles away.

The time-honored doctrines of Assumed Risk and Contributory Negligence come also well within this list of obsolescent formulæ, which a long suffering public is commencing to recognize as not comprehensive or humane enough to the employé to meet the demands of modern justice.

In place of these and many other outgrown fetishes and forms of legal ancestor worship, which passed as "Common Law" among the lawyers of early and semi-agricultural days, we are coming to see that vastly broader and more humane principles must underlie our complicated modern life, if law is still to be the embodiment of justice.

A truer conception of law than any laid down in the medieval and evasive doctrines of Fellow Servant and Contributory Negligence is to be found in the theory that all corporate and public, and many private, rights flow from and are farmed out for the benefit of the community. If a corporation or manufacturer thus becomes merely a public agent, then the injured employé, whose disability will eventually make him or his family a public burden, should—unless grossly and individually responsible for his injury—be entitled to recompense, and the community should bear the charge through an addition made to the original cost of the product turned out by its agent. "If a corporation has no recourse but to replace a wrecked engine, why not reimburse also the injured engineer and charge both items off to maintenance?"² These charges in turn must be balanced later on by a slightly higher tariff collected from the community.³

As we shall come to see in our examination of the laws of those European countries where this system is actually in force, such a method breeds no litigation, debases no workman, and, by virtue of its wide apportionment, the charge is absorbed unconsciously by those who inevitably have to bear it.

None of these far-reaching social principles have ever received even the scantiest recognition from the eye of the common—or judge-made—

2. J. W. Lewis, *Atlantic Monthly*, January, 1909.

3. From President Roosevelt's message of Dec. 4, 1906, referring to the Employers' Liability Act of 1906. "It was a marked step in advance to get the recognition of Employers' Liability on the statute books, but the law did not go far enough. * * * The inevitable sacrifice of life, though reducible to a minimum, can not be eliminated. * * * It is a great social injustice to compel the employé, or rather his family, to bear the entire burden of such sacrifice, when the injury is often the direct result of the legitimate risk of trade. Such risks and burdens should be placed where they belong—on the cost of the completed article, through the medium of an assessment against the employer. Trade risks should not be borne by the workman."

law, which has never looked—when it looked at all—in any direction other than backward and inward.

The best that the common law has ever done has been to recognize the ruthless rapidity and strength of the modern machine by no longer exacting of employé, passenger, bystander, or wayfarer more than the ordinary efforts of the instinct of self-preservation when brought in contact with such appliances. Even these efforts are often conceded to be feeble and unavailing, and the law very properly exacts from the corporate interest, as a price which it pays for rights of way, better power, increased production, and higher speed, a pledge of safety and protection for those who approach its property. The owner or operator of “ways, works or machinery”—who is, after all, as we have seen, but the agent of the public—shall so safeguard them that no properly instructed or right-minded person—whether employé, passenger, or bystander—shall be injured on or by them except through his own wilful and voluntary act. Any employer or proprietor not furnishing such protection is guilty—under the common law—of Negligence.

“By Negligence is meant, in law, the failure to exercise that degree of care which the law requires for the protection of those interests of other persons which may be injuriously affected by the want of such care.” (Century Dictionary.)

Claims made under the common law by an injured workman seeking redress in American courts from an employer, are usually based on some form of Negligence of the latter's duty to fulfill this pledge of safety to his employé.

It might seem at a casual glance that it would be easy to recover compensation on such a plea. But the common law has always refused to recognize any of the broader responsibilities which the manufacturer and his product owe to the workman, and insists that all negligence shall be traced to and charged only against its exact source.* And so the employer

4. “By Negligence is meant, in law, the omission to do something which a reasonable man, guided by those considerations which ordinarily regulate the conduct of human affairs, would do, or doing something which a prudent and reasonable man would not do.” (American Law Dictionary.)

*NOTE.—Statistics vary as to the responsible source of industrial accidents and their attendant injuries. Most American articles and statistics on this subject are based on foreign sources, since the laws of few American states have reached even the preliminary stage where employers are obliged to furnish casualty information to insurance boards or labor commissioners. A recent American writer states that about 20 per cent. of these accidents are due to negligence of the employer; 30 per cent. to negligence of the workman; and 50 per cent. to unavoidable causes. These later constitute a class of legitimate *risques professionnels*. Another writer (Warner, Green Bag, 1906), probably deriving his statistical information from the same source, cites the New York Labor Commissioner's Report of 1899 to show that in Austria 75 to 80 per cent. of injuries are due to *risques professionnels*, and not to any avoidable negligence. In Austria, only one per cent. of accidents are now assignable to employers' negligence, as against 20 per cent. in Germany, 12 per cent. in England, and an unknown but probably extremely high percentage in the United States.

These are late statistics. Prior to the date when the last very stringent Austrian laws of 1902 went into effect, the percentage of unavoidable accidents out of the total was much less—50 to 55 per cent.

Under a mutual scheme of accident insurance, started in 1897 by the South Metropolitan Gas Company of London, the number of accidents per thousand showed, during the ensuing ten years, a steady decrease of about 4.5 per thousand per year, or from eighty-two per thousand in 1897 to thirty-seven per thousand in 1906. This remarkable decrease in the percentage of accidents was due to two causes: First, an effort by the company to give the employés better protection, and second, the organization of the employés of the various stations of the company into separate branches, with their own assessments and statistics. Improvement in the statistics for any branch resulted in the reduction of the assessment against the members of that branch. As will be seen later on in the discussion of German laws, this detail was borrowed from a similar system established among groups of German employers.

These statistics—if correct—show conclusively, when compared, that both employers and employés are led to eliminate their own percentage of avoidable accidents when brought face to face with the fear of financial loss or criminal prosecution.

responds with various counter-pleas—*tu quoque*—unless a statute expressly forbids them—some just, some unjust, and all legal—which enable him to shake off his pursuer by proving either: that the negligence was not his; or had been contracted for; or was overshadowed by a more proximate negligence on the part of the injured plaintiff; or that the latter knew beforehand of the negligence and assumed the risk of injury through it by remaining in the service.

Various phases of the doctrine of Negligence—with its Pandora's box of troubles for the employer, the workman and the public—will be discussed more in detail when considering the American aspects of workmen's compensation.

The evolution of the English laws relating to industrial accidents furnishes at this point instructive study for those interested in recent efforts to galvanize life into the common law medievalism of American courts.

II.

WORKMEN'S COMPENSATION FOR INDUSTRIAL ACCIDENTS IN ENGLAND.

Under the common law, which in England governed without restriction in these cases until 1880, the employer was liable to the employé for injuries resulting from breach of duty on the part of either the employer or of any one authorized to act for him, even though the employer was unaware of the specific act of Negligence.

Thus, Negligence became—very properly, according to the notions of early days—the basis of the action; but unfortunately it also became the basis of the defense, and the English workman was usually effectually barred from recovery by one of the following pleas, drawn from the abundant stock of English judge-made laws:

1. A plea by which the burden of responsibility was shifted to the shoulders of a neglectful fellow servant—the "Common Employment doctrine," based on the decision of Lord Abinger in the "Butcher's boy" or Priestly case of 1837.

2. The ancient doctrine of "Contributory Negligence," a plea by which the burden was shifted to the shoulders of the injured party himself, provided he had contributed to the accident by the smallest measure of Negligence.

3. The still older doctrine of "Assumption of Risk," with its corollary—*volenti non fit injuria*. "Shortly, the servant must have been willing to encounter the risk, and at his own expense to bear the consequence."⁵ Also, if he had not wished to assume the risk of the known Negligence of his employer, he could have quit his service.

Thus the employé, though injured through no fault of his own, was left, to use a somewhat homely expression, to hold the empty bag, and the employer took all the profits of his perilous labor. It may be observed, in passing, that the law in many of those American state courts where common law practice still governs, has never advanced beyond this stage.

To remedy this outrageously oppressive attitude of the English courts toward the workman Gladstone in 1880 secured the passage of the

5. Roberts & Wallace, *Employers' Liability*, p. 165. 4th edition, English.

Employers' Liability Act. This act was modeled after the Prussian act of 1838, which was originally designed to protect railroad employ  s only, but which was expanded and incorporated into the German Imperial Code of 1871. The Gladstone Act had all of the vices of its prototype of 1838, without any of the safeguards added either in the German code of 1871 or in those later German laws which followed shortly after the Gladstone act. Whilst this Act specifically abolished the tripod of common law defense just mentioned, it was still based on negligence, and threw upon the employ   the heavy and difficult burden of proving the same. In addition, no provision was made to prevent the forestalling of claims by contract, and employers were soon informed by their legal advisers that they could evade their obligations under the Act by contracting with employ  s to renounce all those rights which the Act intended to confer upon them. Such contracts are still valid in many American states; all railroad employ  s sign them on entering service, and the document passes among this class of our working men under the often prophetic title of "death warrant."

Had Gladstone been more familiar with the inevitable socialistic trend of German thought, and with the legitimate imperial efforts to guide and counteract that tendency, he would have detected the rising movement which culminated in the great series of German laws of 1881-1890. Even in his own country this movement was rapidly ripening, and he need not have left it to Joseph Chamberlain to enunciate to the English speaking world those far-reaching principles which first had authoritative public utterance in the Kaiser's speeches before the Reichstag from 1881 to 1884.⁶

It was not until 1893 that Chamberlain took the position, in advocating a Workman's Compensation Act, that many industrial accidents were altogether unavoidable either by employer or employ  ; that they were phenomena inherent to industry; and that their expense should justly be charged against the only factor in the balance sheet entitled to bear it—the cost of the finished product. To Asquith, however, was attributed some years later the apothegm that "the blood of the workman is part of the cost of the product." These utterances, as already noted,

6. A few extracts freely translated from two of the speeches of the Emperor are interesting in this connection as showing the broad spirit of intelligent statesmanship which animated this best and wisest of German rulers: "I have already expressed to you my belief that the remedy for social evils does not lie in the direction of a repression of the social-democratic movement, but is to be sought more justly in the enactment of mutually satisfactory measures which will tend to the advancement of the welfare of the workman. We hold it to be our imperial duty to ask the Reichstag again to lay more closely to their heart this undertaking, and feel that God will have blessed our reign more signally if we could leave behind us the consciousness that we have given to the dwellers in the fatherland a greater security and independence of circumstances through the enactment of laws tending to remedy the situation of those who are legitimately in need of assistance. In our efforts directed towards this purpose we are certain of the agreement of all the federated states and hope confidently for the support of the Reichstag, without consideration of individual or party differences. To find the right ways and means for this provision is perhaps difficult, but it is also one of the highest of our common duties, resting as it does on the traditional foundation of the Christian life of our people. It is believed that a solution of this problem—which the power of the executive alone is not sufficient to achieve—will be secured by bringing the varied activities of our national life together into the form of *incorporated associations of industrial units under state protection and control*. Even by this means, however, it does not seem to be possible to reach the end of our desire without making use of those methods which it is within your privilege alone to employ, but our imperial duties impel us to neglect no means at our disposal to further the betterment of the position of the workman, and the peace and contentment of the working classes, as long as God gives to us also the strength to work."

were foreshadowed a decade before in the Kaiser's speeches from the throne and in the subsequent discussions on the floor of the Reichstag.

Although violently opposed by the large manufacturing interests, the measure of 1893 failed of enactment, not because of this novel position taken by Chamberlain and Asquith, but because the radical element in the Commons very justly refused to accept an emasculating clause, inserted in the House of Lords, permitting employers to nullify the act by contracting with employes to renounce any rights which its provisions might secure to them. Thus, final legislation was postponed until 1897, when a Tory government, with Joseph Chamberlain in the lead, enacted the first experimental Workmen's Compensation Act—the most radical and yet the most conservative industrial law ever passed in England. This Act reached a certain limited number of especially dangerous industries, and under it seven million employes secured relief.

Such experimental legislation was planned broadly on the lines of the German law of 1884-5, and was followed shortly, as in Germany, by the appointment of a commission to inquire into the results of its operation. A brief survey of the commission's report shows that, although the imposition of disability pensions threatened the employers with a constantly increasing burden; and, although the enforcement of the Act terminated their willingness to contribute to any previously existing mutual insurance scheme, there was very little, if any, increase in the cost of the finished product. On the other hand, it diminished very materially the quantity of litigation and its cost to both parties, and led, on the whole, to a much more friendly status between employer and employe.

This report, and the statistics which were collected after several years' operation of the Act of 1897, served in a large measure to stimulate further legislative effort toward a more comprehensive English law, which would not only simplify and embrace previous enactments, but which would give to all workmen the rights which, under the law of 1897, were enjoyed by only one-half of their number. But it is more than likely that this final effort, which saw its successful consummation in the recent Act of 1906, was the direct result of a study by Asquith and other English statesmen of the Imperial Industrial Code of Germany of 1900, which represents the ultimate and most far-reaching effort of the Reichstag.

It is to be noted, however, that whilst the results sought by both laws are practically identical, the English method of approaching their industrial problems differs radically from that pursued by continental governments. There is a manifest effort in the English law to adhere to the older structural forms of administration, and it bears less evidence of that tendency to radical reconstruction which might lay it open to the charge either of paternalism or socialism. In this and in the following ways does the English law of 1906 approach more nearly to a realization of those methods by which we in this country will, in the near future, modify or reconstruct our own system of dealing with industrial casualties.

For example, compulsory insurance has no place in the Asquith Act of 1906, because a system of Friendly Societies, under supervision of a

Registrar's office, was firmly implanted in Great Britain even before the passage of the Gladstone Act. These societies have been found to supply satisfactory working men's insurance, especially when employers make voluntary contributions to the society. Again, both the Chamberlain and Asquith Acts are left to work themselves out automatically on their own merits, with no especial machinery devised for the purpose of carrying out their provisions, other than that of the trade committees and county courts already in existence. These functions of trade committees and county courts have been expanded by the Acts, so that the processes of settlement by arbitration through committees are more definitely legalized. Should no committee exist, either both parties to the controversy, or the county courts, are empowered by agreement to appoint arbitrators, paid by the Treasury, to decide claims for compensation brought under the Act. In the event of agreement failing, either party to the controversy may request the judge of the county court to proceed as arbitrator, in accordance with the usual rules of his court. Should the court prefer not to serve, he is authorized to appoint an arbitrator in his stead. The Secretary of State appoints and pays medical referees, and the right of appeal from the decision of such referees is granted in specific cases. Trial by jury is therefore abolished in cases adjudicated under the provisions of these Acts. Should the employé elect, the way is still open to proceed against his employer by civil suit under the common law, or under the Gladstone Act of 1880.

It will thus be seen that the Workmen's Compensation Act of 1906 is intended to supplement rather than to supplant the already existing legal machinery. In the practical test, however, both workmen and employers have come rapidly to a favorable opinion of the later laws, which embrace in their operation over thirteen million individuals, or the entire working population of the United Kingdom. Out of 2,065 deaths through trade accidents in 1904,⁷ only 524 were made the basis of proceedings in the county courts; the remainder were settled by committees or arbitrators under the terms of the Chamberlain Act. Twelve suits were brought for *damages* under the Employers' Liability Act of 1880; the remainder were claims for *compensation* under the Workmen's Compensation Act. Out of 4,223 personal injury claims only 598 were brought before the county courts..

It is at present too early to furnish statistics of the operation of the Act of 1906.⁸

III.

Since the Workmen's Compensation Act of 1906 is the latest word in English law on this subject, and may be supposed to represent the best which Anglo-Saxon industrial evolution can yet accomplish for the work-

7. In Great Britain there are reported annually about 18,000 trade accidents.

8. Recent statistics show that the total number of judges for civil cases in England and Wales is ninety-two to a population of 32,000,000. As illustrating the enormous excess of civil processes in this country, a late report shows that there are in Illinois, for a total population of about 5,000,000, 216 judges, besides justices of the peace and federal judges—a veritable legal debauch. These figures demonstrate more loudly than any argument the crying necessity for some radical change in the adjudication of those industrial claims which now come before American civil courts and juries.

man, the following brief generalized summary of its more important provisions is offered:

Any workman sustaining an injury or contracting certain diseases in consequence of employment may demand compensation from his employer under this Act.

But should he choose, he may proceed—if the employer has been guilty of personal or wilful negligence—by civil suit under the common law, or under the Gladstone Act; and should he lose his civil suit he may still seek compensation under this Act of 1905.

The Act does not bar proceedings against employers to assess fines for violation of other laws; in this respect the Act bears a strong resemblance to the laws of many continental countries.

Ample provision is made for the adjustment of compensation, either by previously arranged agreement, by arbitration, or by the stipulation of certain approved Friendly Societies.

Arbitrators are appointed by the county courts; medical referees are appointed by the Secretary of State. These fees are paid out of a fund provided by a separate Act of Parliament.

Contracts to relinquish claims for prospective personal injury are void.

Unless the employé is seriously injured, or dead, he or his heirs can not recover for injuries due to wilful or flagrant misconduct.

Employers must make returns to the Secretary of State of all accidents and the compensations allowed therefor.

The plaintiff's attorney—if one is employed—has no lien on the amount recovered, and the county court under whose jurisdiction the arbitration takes place decides his fee.

"Workman" means any person working continuously in the service of an employer, whether by way of manual or clerical work, or otherwise, provided he earns less than £250 yearly. Only those performing manual labor are included if their earnings are over £250, and casual employés, police officers, out-workers, and resident members of the employer's family are excluded.

An examination by a medical referee is a *sine qua non* in all cases occurring under this Act. The examination may be repeated, if necessary, at proper intervals.

No liability for less than one week's disability.

In case of death through accident the dependents of the workman receive not less than £150 or more than £300, the amount paid being estimated on the basis of three years' average wage.

In case of total or partial disability the workman receives up to 50 per cent. of his average weekly earning capacity, but not to exceed £1 per week.

The amount to be paid for partial disability is decided by the arbitrator after taking the opinion of the medical referee and other qualified experts.

Where a weekly payment has been continued for six months or more the employer may elect to cancel the same by payment of a lump sum yielding an income—if invested in the Postoffice Savings Bank—equal to

75 per cent. of the annual value of the weekly payment. This is optional with the employer.

The entire burden of these payments falls on the employer,⁹ although the employé may increase his resources by approved insurance, and the employer may protect himself by the same method.

All death payments are made to and handled by the county courts, and the courts are empowered to administer and invest these funds in such manner as they see fit.

Ample provision is made for the enforcement of all the stipulations of this Act and for preference of pension claims in case of insolvency of the employer.

THE QUESTION OF THE EDUCATION OF CHILDREN AFFECTED WITH RINGWORM AND FAVUS OF THE SCALP.*

JAMES NEVINS HYDE, M.D., CHICAGO.

I understand that the subject for discussion this evening is the question, "What Can Be Done to Provide the Children Who Are Infected with Disorders Due to the Presence of Vegetable Parasites (chiefly ringworm and favus), with the Advantages to Be Secured in the Public Schools of the City of Chicago?"

At the outset of the discussion it is proper to recognize the fact that in the scheme of our American civilization, the children, especially of the poor, have a right to education in the public schools. The parents of these children are taxed for this purpose; and those who are not their parents are also taxed and willingly pay taxes in order chiefly that the community in which they dwell may not be needlessly burdened with an ignorant and criminal population. I use these words purposely, calling your attention to the generally accepted fact that the ignorant man is often the criminal. The uneducated child of poverty may be, without much hesitation, regarded as a criminal in embryo. The statistics of our country as set forth by our judges, show that an immense majority of all criminals are males under age, many of them less than twenty years of age, and the mass of them under twenty-five. The child affected with a contagious disease, when such diseases are recognized, is excluded properly from the public schools lest there be a transference of the disease to others. The diseases under discussion this evening are admittedly contagious and highly contagious; and while they do not necessarily interfere with the health, and often are even consistent with a very fair degree of good health, they are no less contagious than the other diseases for which children are excluded from the schools.

The proposition before us is how can we secure these children their rights? and I think it will be admitted that they have a right to public education. In this country no class of persons, whether children or adults, can long be deprived of their civil rights without a more or less emphatic protest. In most Anglo-Saxon countries the sense of justice pervades the consciences of the greater number of those in authority and when their sense of the commission of an injustice to any class is thoroughly awakened, justice is finally awarded to every class in every condition of life. The very helplessness of children makes their appeal the stronger to all fair-minded persons. It remains now to be considered what are the objections to the granting of these rights. I will name four objections and endeavor to make some answer to each:

9. Thus the English law follows the majority of continental laws in placing the burden—regardless of culpability for the accident—altogether on the cost of the product, *via* the employer. The German law recognizes the necessity for a more equitable distribution of the burden, and charges a certain portion of the expense for the care of those injured, against the Sickness Insurance Fund, to which the employé contributes. Under certain conditions the state also contributes a percentage to these funds, on the theory that the state is thus relieved of an otherwise necessary charge.

* Read before the Chicago Dermatological Society, Jan. 22, 1909.

First. It is claimed that if infected children are permitted to associate with those who are clean, that the latter will be infected by the former, and no objection could be better based. One of the best authorities on this subject in France sets forth the proper dictum in these strong words, "The school inspector should be pitiless. No ringworm of the scalp should be tolerated for a moment and for any reason among school children. In any such event after a brief delay, an epidemic of the disease is inevitable."

This much granted, it may be urged that it is sometimes necessary in the public interest to deprive individuals of their rights, as for example, where a man is deprived of his property because he is creating a public nuisance in the neighborhood where he resides, or because he is doing that to the profit of himself which works injury to the morals of the community. But in none of these cases can an argument be made to apply to such conditions as those here considered for the reason that the man whose rendering establishment is a menace to the community where he lives or whose infected milk may be excluded from the houses of his patrons, if thus prevented from conducting his business can work no further harm to the community, while children affected with ringworm excluded from the public schools are by no means obliterated from the list of menaces to the well-being of the community in which they live, but may and do continue without surveillance to disseminate their disease in other quarters. What is far worse, in consequence of the neglect of their school education, they receive as a result the worst sort of an education; namely, that furnished on the streets. The result is they finally become members of the criminal class. The answer then to the first objection is two-fold; first, children with this disease must and should be excluded from the public schools in the interest of those who are not contaminated; second, in the same interest and in the interest of the community, they must not be excluded from educational advantages.

The second objection sounds plausible enough and seems to embody a reproach to the medical profession. You may retort, "If you want children who have ringworm and favus to be educated in the public schools, your first duty is to heal them, after which they will be received without protest." I desire to emphasize very strongly the answer to this objection: Every physician who knows anything about the accepted methods of treatment of the diseases in question is aware of the fact that unless under very exceptional circumstances, even with the most skillful attention and the most scrupulous care, it is impossible to eradicate from the surface of the scalp with its thousands of hairs and hundreds of thousands of germs (one may say that they even amount to millions) every spore of the *microsporon* or *achorion*. More than a quarter of a century ago when I sat on the benches as a medical student, I saw in the clinics of New York City men of my profession struggling with this same problem, a struggle which is conducted with no better success to-day than then. Bodin, of France, has written, "the elements of this disease, deeply infiltrated as far as the root-extremity of the hair, find in the hair-pouch a sure and inviolable asylum, for no parasiticide, whatever be its form and whatever the condition in which it is employed whether solid, liquid, or gaseous, can penetrate to the depth of the follicle by reason of the anatomical disposition of the hair-shaft in its pouch."

I find some authors in this connection making distinction between cases which are acute and which are chronic. I regard this distinction as one not without possibilities of danger. In practice, as a matter of fact, all these cases are chronic and that which seems to be acute to-day may be chronic next week or the week after. The problem is a very simple one. If we remove all the hair filaments from the scalp with the *x-ray*, a brilliant success is often secured. But many parents are wholly unwilling and strenuously object, first to the complete removal of the hairs; and second, to exposing their children to the fancied dangers of the *x-ray*. In the absence of the ray treatment, no medicament, penetrating however deeply and however destructive can be promptly effectual. Therefore, in the most of the cases, the slow and tedious methods have to be adopted.

How slow and how tedious these methods are can best be appreciated by some reference to the measures which are adopted in the continent of Europe as well as

in our own country as to the time required to secure such relief that the children can be given a clean bill of health and restored to the school-room. Beginning with Great Britain, I quote the language of Sir Malcolm Morris with reference to ringworm: "This disease if left to itself will last for years but as a general law, to which there are but few exceptions, it works itself out as adult life is reached. By proper treatment the disease can generally be cured within a reasonable period, but the practitioner will do well in a given case not to commit himself to any definite limit of time. In cases of no extraordinary severity, the treatment may relieve the condition in from three to six months; in certain cases for a year or so; and in exceptionally obstinate cases, for a much longer period. The small spored fungus which causes about ninety per cent. of the cases of ringworm met in London is far more difficult to deal with than the large spored parasites, a circumstance which accounts for the failure in England of methods found successful elsewhere." Crocker, of the same country, writes as follows: "Every case is curable but it is difficult to say exactly how long the treatment may last. In recent cases six weeks to three months is a short time, and twelve months a fair time, but some cases take longer even in the most experienced and skillful hands, and a large proportion of cases reported as cured in a month or six weeks, are only examples of unskilled observation."

Turning to France, I quote Bodin with respect to favus as follows: "In France three months of vigorous treatment, consisting invariably of epilation with the employment of parasitocides is followed by a period during which the child is under surveillance and the new hairs are permitted to grow. During this period, however, parasitocides are continuously employed. The treatment is then frequently renewed. The certificates after cure, however, are good for only one month. A definite certificate is given after three months' more delay." But there is no writer in any country whose name is more completely identified with the disorders due to vegetable parasites than Sabouraud of Paris. In quoting him I believe that I am citing an authority whose opinions are given weight throughout the medical world. Sabouraud writes: "In certain cases, fortunately rare, nothing can give an exact idea of the tenacity of the disease. Children eight years affected may have at least a dozen hairs betraying spores. Even when the disease has not attained this extreme longevity, the termination of the process sometimes requires fifteen months and even two years, especially if the treatment at the onset has been imperfect. One can easily picture to one's self the discouragement and tax upon the patient or parent watching a disease which at the same time is both so malignant and so rebellious."

It appears then that in the populous centers of Europe, as in this country, even with the best of treatment a child may be for months affected with the disease unless that mode of treatment be pursued which it is rare to secure in public practice both on account of the expense and the time and the supervision requisite. Further, it appears that while these exceptional cases may require but a few months of treatment, in some cases the disease lasts for years and it is only with great caution after repeated and careful microscopical examinations and after a further delay of months that the child can be definitely described as absolutely free from the disease. In this connection I remind you that the microsporon disappears as a rule when puberty is reached or soon after; and that favus may persist for a lifetime. We have, therefore, these evidences that children affected with ringworm and favus, may and probably should be, excluded from contact with sound children for one or more years.

The third objection I cite is based upon the alleged infrequency of the disease in our own city. The number of infected children has been said to be so small that it is a negligible quantity. It is urged that no great harm is done by keeping a few children out of school for a few months. Responding to this objection, I urge first that if there are twenty children deprived of their school rights by reason of the causes under discussion, harm is done. We have no right to deprive ten children in the city of Chicago of the rights which they have

conceded to them in our scheme of government and civilization. The second argument in opposition to this objection has no less force. The number of children affected with ringworm and favus is considerably larger than will be believed by those not studying the statistics of the disease. Let me say at the outset that these statistics have an importance which the statistics of typhoid fever and other diseases limited in their career do not possess. The typhoid patient of to-day may be dead next year or alive and well. The boy or girl with ringworm or favus this year may be one year from now as unfavorably situated with reference to contagion and school privileges as to-day. I therefore have no hesitation whatever in citing the cases which we have on record for the last two years as holding good probably for the estimate of to-day.

Sabouraud writes that "in the city of Paris by virtue of many conditions which might be enumerated, such as the size of the population in children (150,000), the small number of physicians who are school inspectors, the extreme difficulty of the diagnosis of the disease at the onset, its indefinite duration, its extreme contagiousness, the frequency with which certificates of immunity are furnished by physicians who really know nothing of the diagnosis of the disease, the increasingly frequent use of implements in common such as scissors employed without disinfection—in brief, for these and other reasons the number of children attacked with ringworm has of late years increased to proportions which are truly formidable with respect to which the public opinion, public authority, and the physicians themselves have no idea." Sabouraud reports that "the number of children affected with *tinea tonsurans* in Paris amounts to several thousands. The Bureau of Public Assistance alone takes annual charge of 1,800 patients. The school which is not inspected may in the course of a few months have one-third or one-half of its pupils contaminated. A contaminated school which is not under surveillance may become in the course of years a permanent focus from which the disease may radiate."

At the Central Free Dispensary of this city and at my own clinic which is furnished with its material from the dispensary, during the years 1907 and 1908, we had fifty cases of *tinea tonsurans* and twenty-one cases of favus, making a total for the two years of seventy-one cases. I have before me a record of the names and addresses of thirty-five children treated for both diseases in this institution during the years named above and it is interesting to know that while the oldest of the children whose age is recorded at seventeen, one case; thirteen, two cases; and eleven, one case; the others were all of school age.

The population of the city of Paris in 1900 census amounted to 2,714,068. It will be seen how closely the population of Chicago as estimated at the present time compares with that of the French capital. It is idle for me to suppose that the statistics of the Central Free Dispensary includes one-tenth of the cases of ringworm and favus occurring in the city of Chicago. I regard it as a small estimate to set the number down as over one thousand, especially in view of the fact that Sabouraud estimates the number in the city of Paris, even allowing for the greater population of that city, as amounting to thousands—1,800 under observation of one public service alone. There are reasons for believing that there are more cases of ringworm and favus in Chicago than in Paris, which I name as follows:

1. The slums of Chicago are reported in Scotland Yards, London, as worse than the slums of either London or New York.
2. The population of the lowest social class in Chicago is mixed; that in London and Paris is much more homogeneous and of one nationality.
3. School inspection and care of children with ringworm and favus is conducted in the capitals of Europe by men who have the opportunity to devote the most scrupulous attention to the cases in hand and to use the most approved treatment.

My belief is that there is as much neglect, filth, and improper treatment of children of the submerged class in Chicago as in any city of equal population in the entire civilized world.

The last objection is one with which as medical men we have little if any to do. It is the financial question. I believe that the school board is not now able to take charge of all children of school age who are fit to enter the school-room. If we asked the board to do more than they are doing at present, to provide, that is, a school or separate floors in a school where children with ringworm and favus can be educated, we presume they will respond that the expense is too great and that they have not the funds wherewith to meet it. To this, as medical men, we can only say that the state and the city have to discharge their full duty to all who justly claim aid and protection.

I am not a prophet nor the son of a prophet, but I can assure those who are interested in this question that once public attention is thoroughly aroused first, as to the danger of these infections to sound children; second, to the even greater danger of the encouragement of the development of criminals by the present procedure, the end sought to be attained will certainly be reached. In the long run, the public may be trusted to solve the problems which are presented to them; first, in the spirit of fairness, and second, with that sterling common sense which I believe to be one of the best characteristics of our American people.

SURGERY OF THE BRAIN AND ITS COVERINGS.*

CASSIUS C. ROGERS, A.M., M.D.

Professor and Head of the Department of Surgery in the Chicago College of Medicine,
Medical Department of Valparaiso University.

CHICAGO.

Since the day of antiseptics, surgery has been so perfected that the abdominal cavity is entered without hesitancy, and frequently by the unskilled. Although handicapped by inexperience and incompetency, many lives have been saved and invalids restored to health. Thus, while abdominal surgery has been giving such relief and satisfaction, surgery of the skull and brain has not received proper attention and little progress has been made except by a very few. The fault has not been with the surgeon who advised operation, but with the profession who discouraged and refused to support what they consider heroic measures, liable to be followed by uncertain results.

For many years the profession has been of one opinion in regard to many diseases of the abdominal cavity. Patients with intra-abdominal hemorrhage have been operated upon at once as soon as a diagnosis was made, while patients with hemorrhage from the meningeal and cerebral vessels have been permitted to lie unconscious for days. (I know of one case living for 30 days with complete hemiplegia and unconscious, no radical efforts made nor advice given to relieve the symptoms.) This surely can not be on account of the discouraging results obtained by operating these cases, for Cushing's experience has been as follows: "From a study of a large number of records it is estimated that 90 per cent. of the meningeal apoplexies prove fatal if unrelieved surgically, 60 per cent. of them dying within the first twenty-four hours. Of a large series of operated cases, 67 per cent. recovered, a percentage which would be larger were it possible to secure prompt intervention before the onset

* Extract of paper read at the North Central Illinois Medical Society, Dec. 1, 1908.

of medullary symptoms in the patients in whom the extravocation takes place rapidly." (Keen's Surgery, page 205, vol. iii.)

In extradural hemorrhage, I consider the operation less dangerous than a laparotomy with a patient equally ill. Why, then, is operative interference discouraged, and why so many failures to relieve? Simply on account of technic and skill, too small an incision and skin flap made, a trephine used and a small area of the dura and brain exposed, and nothing abnormal found, although the small opening was made over the location suggested by the focal symptoms, after correct measurements had been made according to Reed or Krönlein, no consideration having been made for peculiar shaped skull or brain developments. The areas are not constant as to external measurements. The central sulcus (Rolandi) around which the motor area is located may vary an inch or more from the supposed location suggested by external measurements. This being true, a trephine opening an inch in diameter may miss entirely the area sought, the small opening permitting only a limited examination of the brain. Nothing abnormal is found and the operation discontinued and no benefit derived.

A surgeon derives no more benefit from such an operation than he could through a stab wound in the abdominal wall in search of an intestinal perforation. What surgeon would be satisfied in diagnosing perforation of an intestine by examining a nuckle of intestine that might have found its way through a wounded abdominal wall? In abdominal surgery we must see what we are doing; the same rule holds true in brain surgery. We must take into consideration the variable location of the area and operate accordingly. An opening must be made large enough so that the brain and its coverings can be easily and quickly examined.

Figure I represents Reed's method of locating the Rolandic area.

Figure II represents the function of the different areas of the brain surface.

Figure III illustrates the size of skin flap that should be made (minimum).

Figure IV illustrates method of making initial opening with chisel and hammer.

Figure V illustrates Dahlgren's forceps used for culling bony flap.

Figure VI represents method of breaking base of bony flap. Chisels inserted at base of flap and held by assistants while pressure is made at the upper part: pressure towards brain. This prevents injury of vessels of dura at base by spiculae of bone by irregular breaking.

Figure VII illustrates skin and bone flap reflected, exposing the dura, giving one free access to anterior middle and posterior meningeal vessels, also enabling one to expose the entire hemisphere by introducing the finger between the skull and dura.

Figure VIII illustrates dura reflected in searching for intradural lesions.

Figure IX illustrates incision for posterior flap of scalp and skull in operating on occipital region.

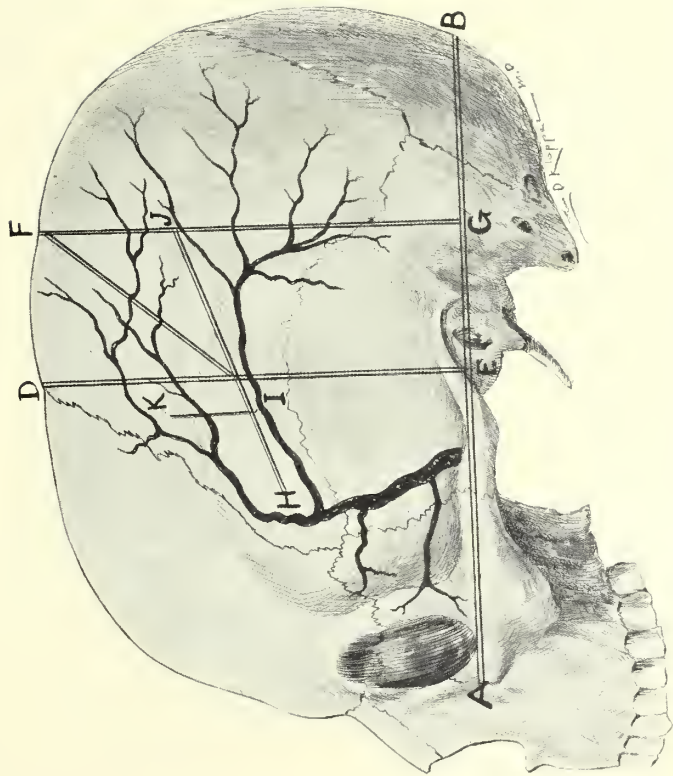


Fig. 1.—Reid's method of cranio-cerebral localization. A B, base-line; E, preauricular point; E D, anterior perpendicular line; G F, posterior perpendicular line; H I, main part of Sylvian fissure; I J, horizontal limb of Sylvian fissure; K, Rolandic fissure.

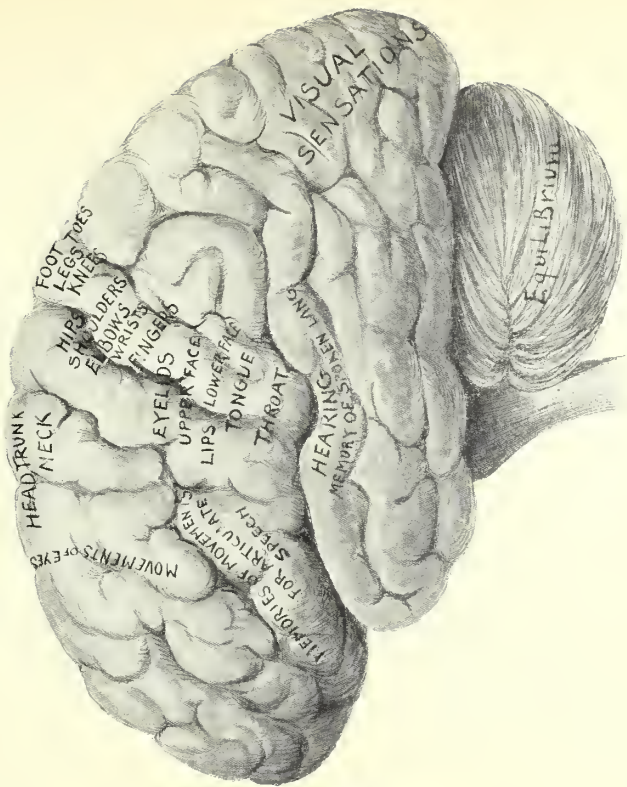


Figure 2.

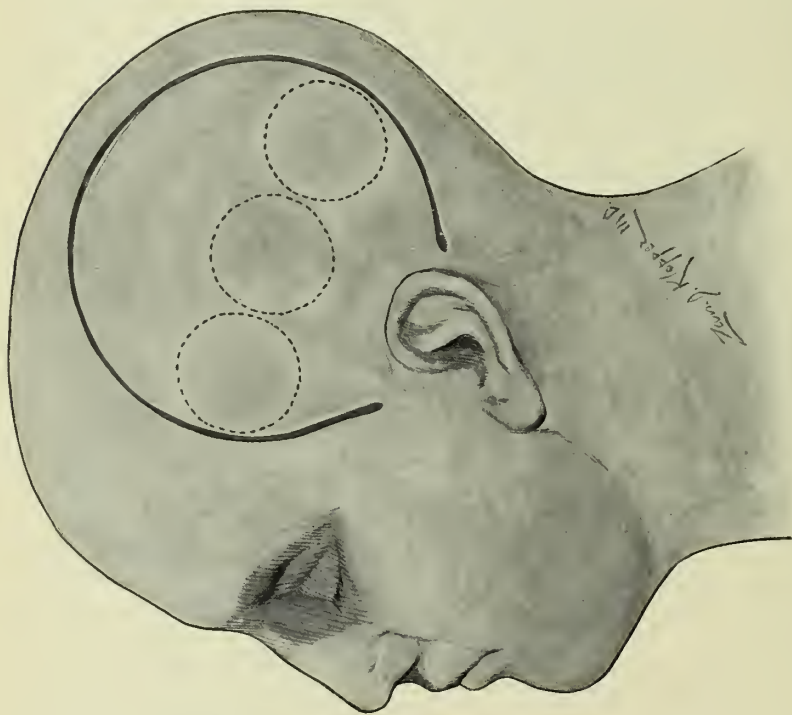


Figure 3.

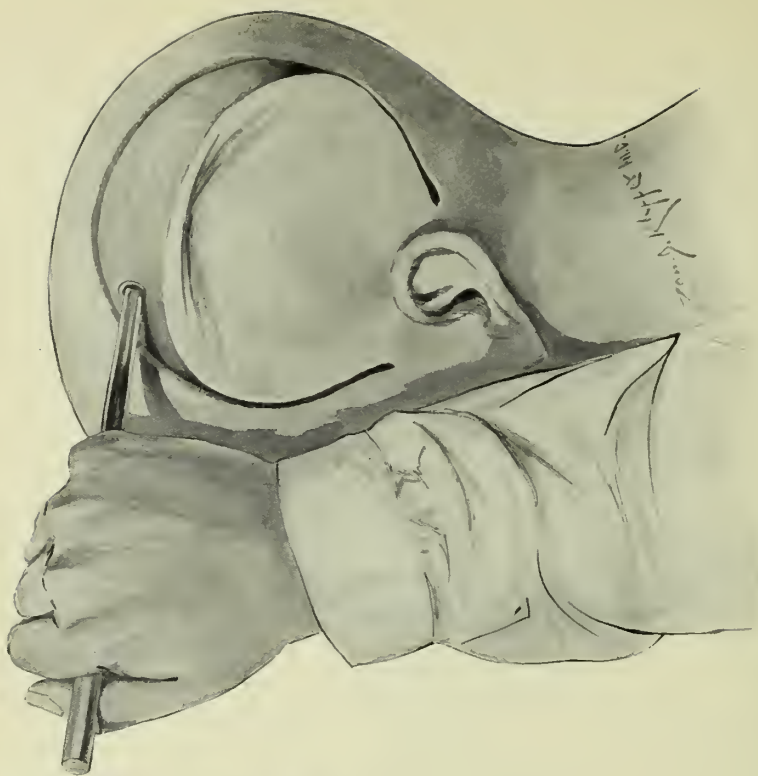


Figure 4.

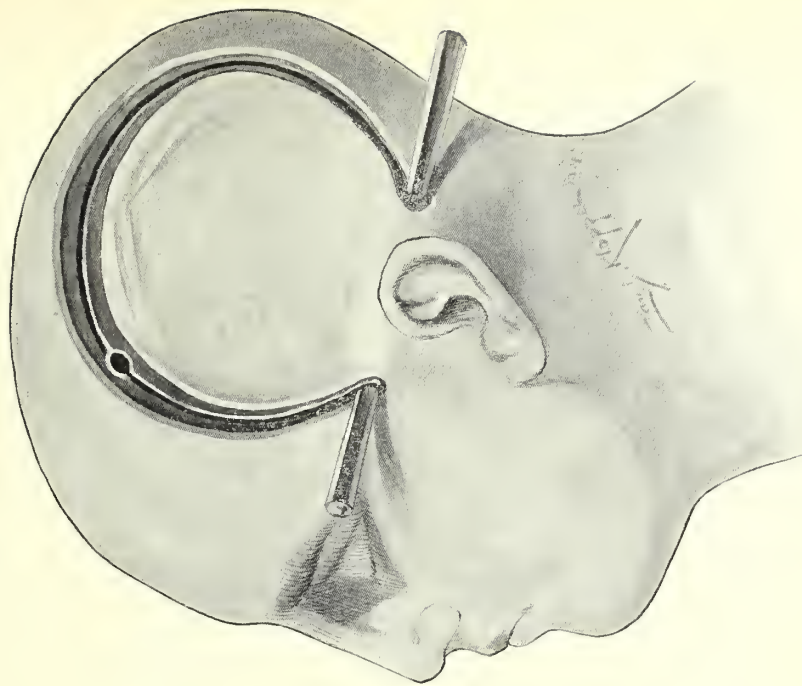


Figure 6.



Figure 5.

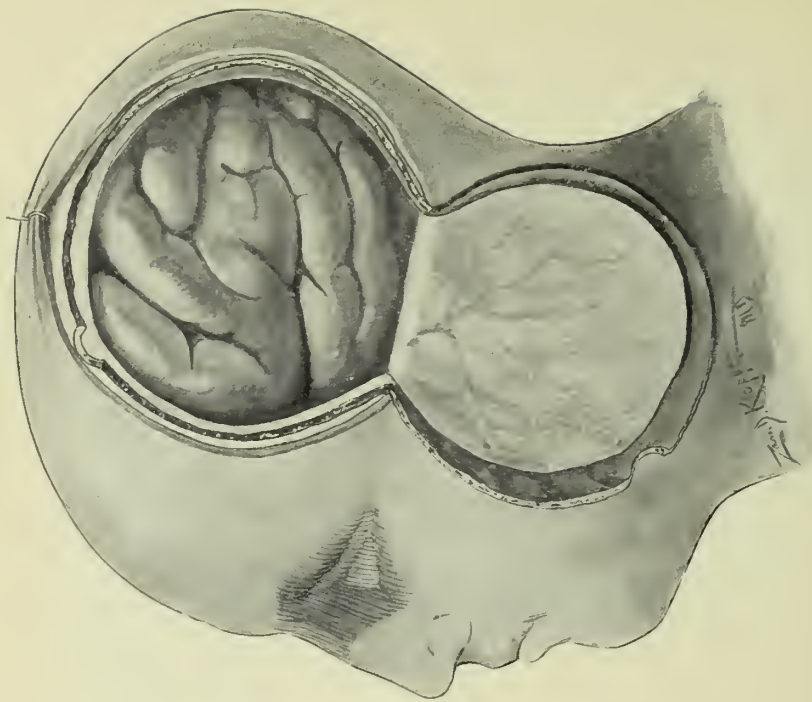


Figure 8.

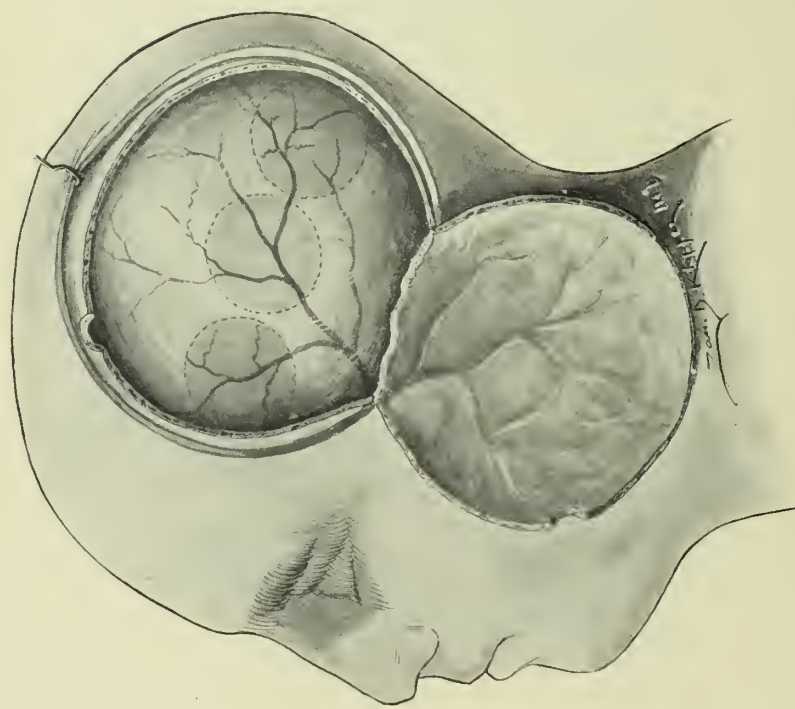


Figure 7.

Figure X shows instruments used in controlling hemorrhage, forceps for scalp and gauze for packing diploe to stop hemorrhage of skull.

I have found the shock no greater from such an opening than following the opening with a trephine, and I have found diseases that I could not have elicited through a small opening. Experience has convinced me that every case of apoplexy should be considered surgical that lives long enough to be prepared for an operation and competent skill secured. The operation belongs to the same class as strangulated and irreducible her-

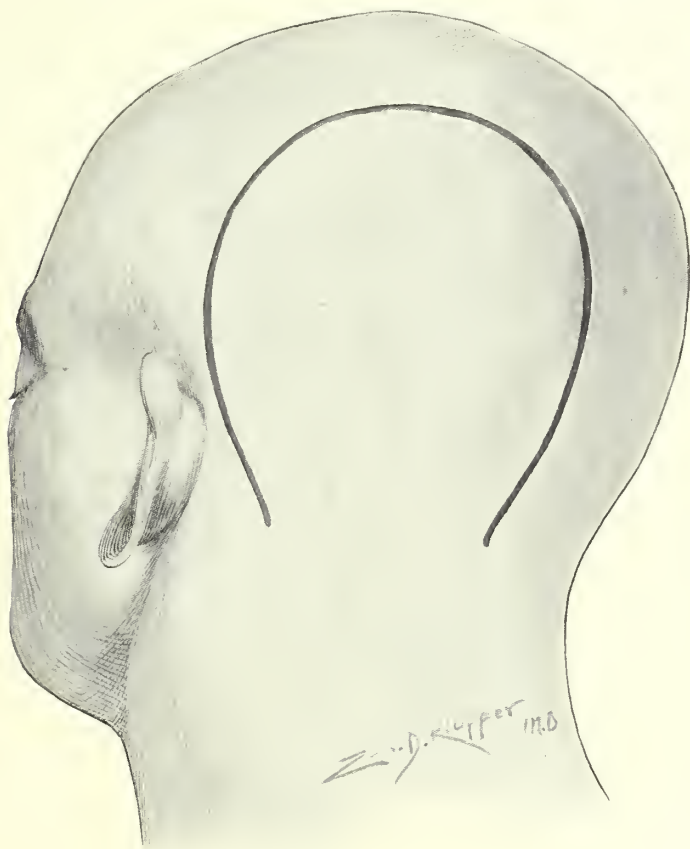


Figure 9.

nia, intestinal obstruction, severe intra-abdominal hemorrhage, etc. The prognosis is as good, the recovery quicker and the results as satisfactory, the patient being equally as strong before the affliction. Intradural lesions may be difficult to locate and sometimes impossible; in these cases the decompression operation may give great relief, a large plate of the skull being removed, allowing the formation of a hernia in the case of tumor or abscess. I saw in Trotter's clinic in London excellent results following decompression.

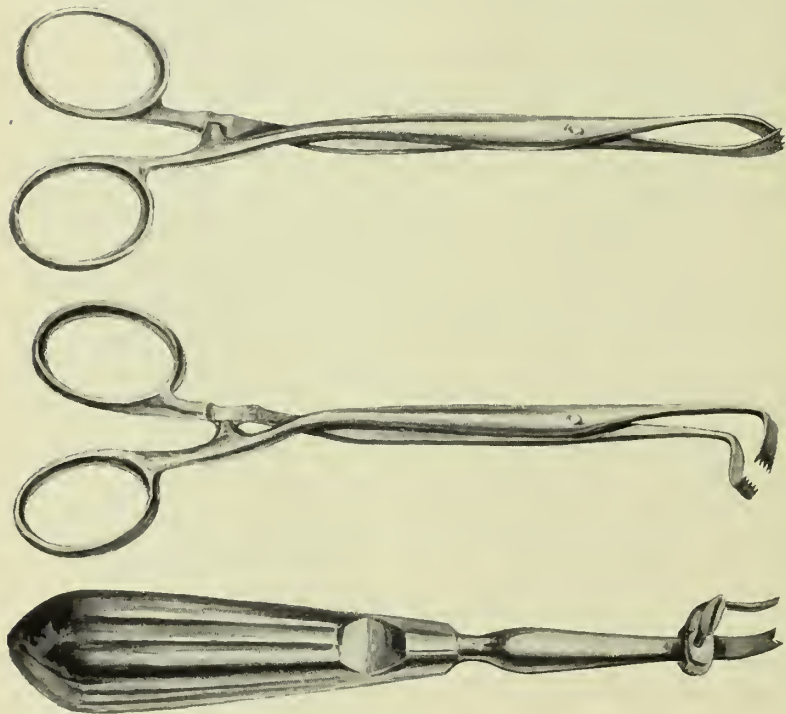
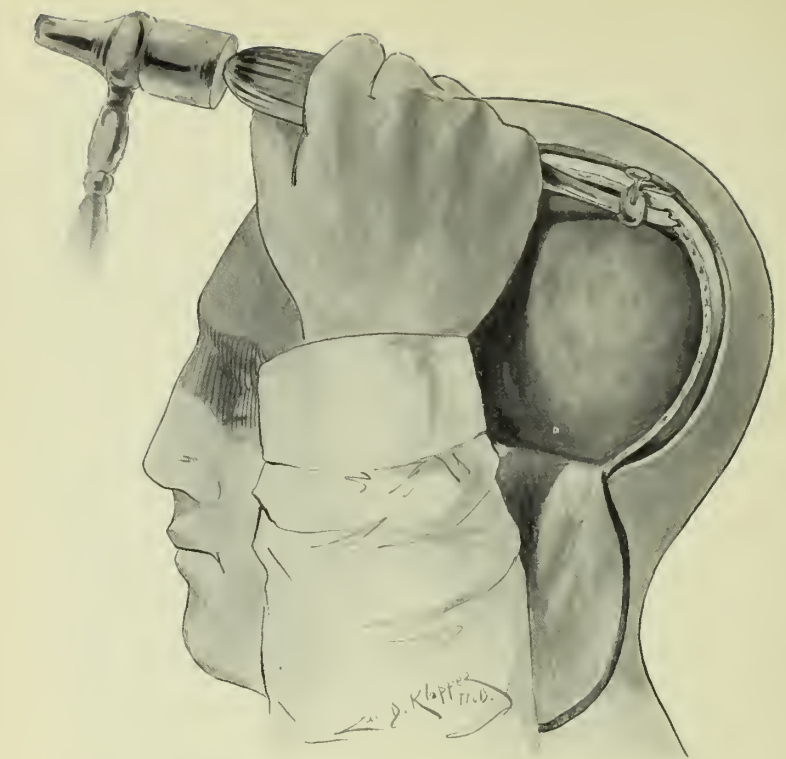


Figure 10.

First, a girl had become suddenly blind; a diagnosis of brain tumor was made; an operation was performed, but no tumor could be located; decompression operation was performed, and sight was restored in a few days. It is sometimes possible when nothing can be found at the primary operation to locate and remove a tumor after a hernia has developed.

One great fault in cranial surgery is conservatism; delay is disastrous. How many poor epileptics could have been cured if surgery had been resorted to early will never be known. Injury, unconsciousness due to shock, consciousness regained and gradual loss of consciousness, should spell hemorrhage to every one of us, and surgical relief at once advised.

True, many of these cases recover for a time; some permanently, others develop epilepsy due to adhesions of the dura and brain, the result of irritation from a blood clot. Many of these cases then seek relief, but, alas, it is then too late.

SUMMARY.

1. Operate early.
2. Make bone flap large enough so that a large area of brain can readily be examined.
3. Symptoms suggesting operation after injury:
 1. Unconsciousness following injury.
 2. Return of consciousness.
 3. Gradual loss of consciousness.
 4. May be rise in temperature; may be normal or subnormal.
 5. Deep sighing respirations.
 6. Slow or very rapid pulse.
 7. Involuntary twitching or moving of hands, face or leg.
 8. Pupils tell but little.
 9. In abscess, temperature is often subnormal unless the meninges are involved.
4. Choked disc is often first sign of intracranial pressure.
5. Symptoms of tumor or abscess may be present, but not found at primary operation. In these cases decompression should be performed.
6. Epilepsy following injury is the result of delay and the case should have been operated upon before symptoms developed.
7. If decompression has been performed, and epilepsy follows, closing the defect only increases the frequency of the attacks.

ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF THE ILLINOIS STATE MEDICAL SOCIETY.

GENERAL OFFICERS 1909-10

PRESIDENT - JONATHAN L. WIGGINS, EAST ST. LOUIS
FIRST VICE-PRESIDENT - CLIFFORD U. COLLINS, PEORIA
SECOND VICE-PRESIDENT - JAMES E. STUBBS, CHICAGO
SECRETARY - EDMUND W. WEIS, OTTAWA
TREASURER - EVERETT J. BROWN, DECATUR
(Ex-officio Clerk of the Council.)

EDITOR - GEORGE N. KREIDER, SPRINGFIELD
522 Capitol Avenue.

ASSISTANT EDITOR - GEORGE EDWIN BAXTER, CHICAGO
4603 Evanston Avenue.

THE COUNCIL

CARL E. BLACK, JACKSONVILLE.	J. WHITEFIELD SMITH, BLOOMINGTON.
H. C. MITCHELL, CARBONDALE.	J. Q. ROANE, CARLYLE.
M. L. HARRIS, CHICAGO.	J. W. PETTIT, OTTAWA.
J. F. PERCY, GALESBURG.	J. H. STEALY, FREEPORT.
W. K. NEWCOMB, CHAMPAIGN.	

OCTOBER, 1909.

PELLAGRA.

This disease, which has heretofore been practically unknown in America and was supposed to be prevalent only in southern Europe, has undoubtedly made its appearance in Illinois and should therefore be studied by our practitioners, as the best authorities are confident that many manifestations of the disease have been overlooked in the past and designated and treated as forms of skin disease. While there has been and still is a great deal of controversy as to the causation of the disease, there seems to be no doubt that it may be traced to *bad* corn. Furthermore, it is not ergotism, and Allbutt believes that it belongs rather to the class of food poisoning; strictly, perhaps, it should find a place in a sub-section of ptomaine poisoning. In this connection it is worth recalling that, especially in the year 1908, there was a considerable quantity of inferior corn put on the market by Illinois farmers.

Pellagra is chiefly a disease of middle life, but children are attacked not infrequently. It stamps its most signal feature upon the skin. The eruption is usually preceded by constitutional disturbances, of which the first symptoms are headache, depression of spirits, sleeplessness, paresthesias, cramps, palsies, vague but often severe pain in the spine and joints, vertigo and dyspepsia. In the later stages diarrhea sets in. The

eruption is an erythema, which chiefly affects the parts exposed to the sun. The eruption is most frequently symmetrical. The skin is swollen and tense, and is the seat of burning or itching sensations; petechiæ are frequent, and bullæ appear, which on rupturing leave indolent ulcers (*pellis agra-ulcer* of the skin). In about a fortnight from the beginning of the attack the erythema subsides, and desquamation follows, leaving the underlying skin thickened and stained of a light sepia color. The symptoms usually subside in the autumn, to reappear, however, in the following spring. The attacks thus occur regularly every year, the thickening and pigmentation being increased on each occasion in the first four or five years. Afterward the integument undergoes atrophy and becomes dry and wizened, as in old age. This atrophy is especially marked on the backs of the hands. The nails and hair show no change.

When the patient has thus been the subject of the disease in its recurring attacks for three or four years his depression of spirits deepens into melancholia of a severe and irremediable kind.

Palsies form part of the ordinary course of the disease; the knee-jerk may differ on the two sides; but in the large majority of cases it is increased; it is rarely absent. Tendon reflexes are often to be detected in the forearms. The gait, though uncertain, is never ataxic; it rather assumes the form of spastic paraplegia. Ankle clonus, though often present, is not invariable. These parietic symptoms are commonly preceded by tremor. Sensation is virtually unaffected.

Together with this degeneration on the side of the nervous system the whole man also deteriorates. Flesh and strength fall away, the mental faculties wane, and life is but too often prolonged to the dregs, to be cut short at last by colliquative diarrhea. With each successive year, to use Dr. Creighton's words, the patient becomes more like a mummy; his skin is shriveled and sallow, or even black at certain points; his bones protrude; his muscles waste; his movements are slow and languid, and his sensibilities grow more and more obtuse.

Dr. C. H. Lavinder of the Public Health and Marine-Hospital Service has recently made the following addition to our knowledge of the treatment of the disease, which is worthy of consideration. He states that the prognosis must invariably be considered as grave and that complete recovery can seldom be assured. Reliable statistics on the subject in the United States are practically limited to asylum cases, and give a mortality of 67 per cent. It must be borne in mind, however, that asylum cases are undoubtedly the more advanced and hopeless ones, and for that reason will give a mortality much above the average. Lombroso gives statistics of mortality cases in Italy in 1883 and 1884, showing a mortality of 13 per cent., whereas Wollenberg gives Italian statistics for 1905 showing a mortality of a little over 4 per cent. The disease resembles tuberculosis, both in that it is an insidious and chronic condition and that much depends upon early diagnosis and treatment, prognosis of early cases being far better than advanced ones. The importance of this is apparent when it is considered that the disease is an intoxication and that it is probably associated with diseased corn or corn products used as food.

Predisposition is believed to be an important factor in this disease. Lowered physical resistance, mental worry, insufficient food, bad housing and alcoholism are supposed to render one more susceptible.

In Italy laws have been passed regulating the use and storing of corn and its derivatives, institutions have been established for the care and treatment of pellagrins, improved agricultural methods are encouraged, and assistance is given to the sick in many ways by the government.

In the treatment of patients Lombroso recommends a liberal diet; in some cases he uses baths and cold douches, believing them to be of benefit in certain cases with nerve and skin manifestations; he has found arsenic a valuable remedy and sodium chlorid of service.

Some authors have reported good results from the use of the newer arsenical preparations, atoxyl and soamin.

Transfusion of blood from cured cases to the sick has been tried and may prove of value.

It can readily be seen that there is an immense commercial side to this subject which should be taken into consideration by the profession and the appearance of the disease stopped at the very earliest possible moment.

Up to this time the disease has only been detected in two of the hospitals for the insane, but it is probable that if the disease really exists in these places cases will be found in other centers, especially the county poor farms.

PROFESSOR (?) BRAUN INDICTED.

Professor Braun, Himself, Herself, Itself and Themselves seem at last to have come to grief, the authorities of the U. S. Court at Springfield having finally taken up the subject, and an indictment is said to have been drawn against Braun recently at the session of the court held in Quincy. The details, such as have been given, show the existing condition of affairs at Braun's headquarters at Bloomington. It seems that the multiple Braun was the head of at least three different corporations, the common object of all of which was to fleece the innocent sufferer. Braun himself seems to have been the chief promoter, securing the names of the sick and ailing by writing to the postmasters in the various towns and offering prizes to bright boys and girls who would give him lists of names of sufferers. He then advertised to give free treatment to all who apply to him when he visited each particular city. When the patient called, however, he was informed that \$15.00 was necessary for eight personal treatments, which he was told was practically giving away these treatments. The first personal treatment was administered by Braun himself. After that his representative did the business, or the patient was told it would be necessary for him to go to Bloomington for treatment, or treatment was given by mail. The mail order treatment was valued at \$5.00 per course. Some of the questions asked were: "Do you get hungry before meals?" "Do your thoughts wander, etc.?" The applicant specifies the hour when he is to think of Professor Braun, and



Typical cases of pellagra. Photographs furnished by Dr. V. H. Podstata, Superintendent of the Illinois Northern Hospital for the Insane.

Braun was supposed to be doing some ponderous mental process at this time. When the mental therapy swindle failed, the patient was turned over to a medical company, and in case payments were not forthcoming the Manhattan Collection Agency (also one of Braun's schemes) was used to worm the money from the victim.

Altogether this is one of the most picturesque swindles that has come to our knowledge, and THE JOURNAL congratulates the people of the State that it took occasion to call attention to this subject in an editorial some two months ago. In all probability Braun's particular energies will be suppressed as a result of this agitation.

PURE FOODS.

Notwithstanding the defeat of the advocates of absolutely pure food at the Denver meeting, we feel called upon to state our belief that the profession as a whole have not changed their opinion of the stand taken by Dr. Wiley. While it may be true that certain food products are made none the worse by a small amount of benzoate of soda, yet to let down the bars and permit its promiscuous use will certainly be a very great mistake.

The pure food laws enacted by Congress have been universally commended and have placed the United States in the forefront of the world upon this matter. Undoubtedly vast commercial interests have been affected by these laws and will make every effort to have them modified at the expense of the health of the consumer. This is all the more reason for the medical profession to present a united stand for purity of the nation's food.

We should welcome a discussion of this subject in the columns of THE JOURNAL, especially as one of the members of the Remson Commission is a resident of Illinois.

THE RELATIONS OF THE URINARY ACIDITY.

In a recent issue of the *Medical Record*, Dr. Henry R. Harrower, of Chicago, introduced an interesting "Study of the Urinary Acidity and Its Relations." The time has passed when moistening a slip of litmus with urine suffices as a test of its reaction. The increasing demand upon physicians for exactness and the importance of the results accruing from the examination of the urine indicate that the estimation of the acidity is most essential, and that such a test should invariably be made as a part of every routine.

The index of acidity varies directly with the metabolism of the body. The production of acids in the cells must exert a decided influence upon this factor. In addition, Dr. Harrower asserts certain products of intestinal putrefaction when absorbed into the blood and eliminated by the urine increases its acidity. Comparing the results of a large number of urinalyses with the clinical findings in those passing the specimens

gives conclusive proof that many unpleasant symptoms and even dangerous conditions are associated with, if not actually caused by high urinary acidity and the metabolic conditions occasioning it.

In a series of 250 analyses the average acidity was found to be 60°, the lowest being 10° and the highest 274°. The other findings showed that 83 per cent. of the series evidenced indican usually in large quantities, in 80 per cent. the urea was diminished quite materially and about 25 per cent. showed casts and traces of albumin.

From these findings the writer concludes that there must be a distinct association between highly acid urine and autointoxication due to intestinal putrefaction, and that this combination of conditions may be a direct factor in the production of urinary casts as well as a predisposing factor in serious kidney lesions.

This data is of interest to the physician because of the aid that it may afford him in obtaining results and directing his therapeutic procedures, since the urinary acidity varies directly with the alkalinity of the blood, and upon this important factor depends the general health and the vital powers of the body. In chronic diseases, especially those that are so frequent as tuberculosis, rheumatism, neurasthenia, and the hundred and one other more or less obscure conditions that are associated with auto-intoxication, there is usually a very high degree of acidity and a marked increase in the number of acid units eliminated daily. With the proper modification of the causal conditions and the resultant change in the urinary findings the chances for recovery are greatly increased, because of the relief occasioned to the body cells by the elimination of these acid poisons which have been hindering their work.

The study of this subject is still in its infancy and it is to be hoped that the future will see more time and energy expended on this important subject.

In closing, the doctor remarks: "The time spent in making quantitative acidity tests and the routine more than repays the general practitioner in the indication for treatment he will receive from this information, and more satisfactory results derived from the better adjusted treatment."

County Secretaries' Page.

A certain secretary of one of our county societies is very much troubled over the matter of whether he should seek the application to membership of some of his neighbors who are or who have been guilty of gross violations of the code. The question is, is it wise to try to reform some of these old offenders by getting them to join the society and then trying to show them the error of their way or shall we ignore them entirely? We suggest that if such are willing to come in, by all means, take them. Often you will be surprised to find out what decent

fellows they are, after all. At any rate, they are more susceptible to proper influences in the society than out of it.

We shall be glad to publish any answers to this query if some of you fellows have anything to say on the subject. Tell us what your experience has been.

Judging from the accounts of the papers read at the meeting of the Missouri County Secretaries we should say that the "Show Me State" is alive to the issues of the day in organization work. We have no information in regard to the number in attendance, but if the spirit of enthusiasm and energy shown in the papers read becomes general we can predict a prosperous year for our Neighbor Society on the West.

"Upon the secretary, more than upon any other member of the county society, rests the burden of keeping the work of the society up to the highest pitch of usefulness, and the members instinctively expect the secretary to exhibit an active, keen and lively interest in everything they themselves attempt to do. If the secretary fails to do this the interest in the work of the society immediately drops, just as the engine slows down when the steam is shut off; for the secretary is usually the motive power of the society machinery, and if he fails to perform his functions faithfully, cheerfully, and conscientiously the other members fall into a state of indifference that spells ruin to the society."

"The great value of THE JOURNAL as a means of giving permanence to the labors of the secretary and to the influence of the society has not been fully appreciated by all county secretaries, for many of them do not give prominence to the work of their societies through the pages of THE JOURNAL."—E. J. Goodwin in August *Jour. Missouri State Med. Ass'n.*

In regard to the publishing of our society proceedings in THE JOURNAL let us make every endeavor to have at least one such paper prepared for each meeting with that particular object in view. It will be an additional stimulus to good work and will materially aid in developing our own men. Many societies have a general understanding that all papers are expected to be handed in to the secretary as soon as read. This furnishes the secretary an opportunity to give his society some publicity which will usually result in increased interest and pride in the scientific work of the organization.

One of the branches of the Chicago Medical Society is arranging for a series of ten minute talks on the History of Medicine to precede the regular program. If the speakers are sufficiently familiar with the essential facts of each epoch to be discussed, so as to be able to talk freely and to the point, we predict that this will prove a very interesting feature of the meetings.

Has the Committee on Uniform Blanks for Secretaries anything to report? Roberts, Flint and Feigenbaum are the members of this committee.

All matter for the Secretary's Page of THE JOURNAL should be in the hands of the editor of this department before the 10th of the month preceding the date of issue, otherwise we may have to use "Boiler Plate" to fill up.

C. H. L.

Correspondence.

A WORD OF PRAISE.

BEARDSTOWN, ILL., Sept. 8, 1909.

To the Editor:—Sometimes it is a pleasure to know our efforts are appreciated. Permit me to tell you in my opinion the present issue of *The Illinois State Medical Journal* is the most interesting and most valuable to the general practitioner that has appeared in a long time. It is chuck full of good, solid, practical matter. With kindest regards, I am,

(Signed)

Sincerely,

R. H. GARM, M.D.

APPEAL TO THE MEDICAL PROFESSION OF THE WEST AND SOUTH.

Up to the present time there has not been a concerted effort made to collect and preserve historical data in regard to the origin, evolution and personnel of our profession in this part of our country. The result of this delinquency has been the total loss of much material that should have been preserved, especially pertaining to medical schools and societies and biographical matter in connection with the practitioners and teachers of medicine of bygone days. A good deal of material of this character is still obtainable if a systematic effort is made to locate and preserve it. It is in the possession of individuals, families and private libraries and will eventually be lost. THE WESTERN ASSOCIATION FOR THE PRESERVATION OF MEDICAL RECORDS was organized in May, 1909, for the purpose of collecting the historical and biographical records of the profession of the West and South. We wish to preserve anything and everything pertaining to Western medicine and medical men and are anxious to enlist the active help and support of every member of the profession who is in sympathy with our aims. We want every one to become associated and identified with the work of our association. There are no fees or obligations of any kind. We have made arrangements with the Lloyd Library, Cincinnati, Ohio, for the proper housing of the material collected. The latter will be systematically arranged, catalogued and properly preserved so that it can be made available for research-work. We are particularly anxious to obtain:

1. Medical journals published in the West and South prior to 1880.
2. Medical books and pamphlets written or published in the West.
3. Manuscripts and autographs of early Western physicians.
4. Old diplomas and other documents of a medical character.
5. Proceedings of medical societies.
6. Reports of hospitals and other medical institutions.
7. Catalogues and announcements of Western medical colleges of all "schools."
8. Biographies and portraits of Western physicians.

9. Information and material of any kind pertaining to medicine and medical men and affairs in the West.

10. Curios of a medico-historical character.

All contributions should be sent in care of the librarian. In view of the fact that we are performing a labor of love and have no funds, our friends will readily understand why all contributions sent by express or freight should be prepaid so that no expense may accrue to the association. The necessary expenses of the association are at present being met by voluntary contributions of its organizers.

May we not count upon *your* active help and support? We would like to hear from every member of the profession who is interested in the proposed work.

C. A. L. REED, M.D., Chairman.

OTTO JUETTNER, M.D., Secretary.

A. G. DRURY, M.D., Librarian.

710 West Eighth Street, Cincinnati, Ohio.

MEDICAL FEATURES OF CONFERENCE OF CHARITIES' PROGRAM.

Physicians will find several interesting medical papers in the program of the Fourteenth Annual Convention of the Illinois State Conference of Charities and Correction, to be held in Peoria, October 9 to 12, 1909. The medical topics, the names of those who discuss them and the dates are as follows:

Dr. William L. Russell, State Inspector State Hospital Service for the New York Commission in Lunacy, subject, "The Clinical Organizations of State Hospitals," Monday, October 11, session beginning at 2 p. m.

Dr. James Stewart, Medical Supervisor St. Louis Public Schools, subject, "Medical Supervision of Public Schools," October 10, session beginning at 8 p. m.

Dr. J. W. Pettit, Medical Director Ottawa Tent Colony, subject, "The Economics of Tuberculosis," October 10, session beginning at 8 p. m.

Dr. William H. Wilder, Professor of Ophthalmology, Rush Medical College, Chicago, and member of the Illinois Commission to Inquire into the Condition of the Blind, subject, "The Prevention of Blindness," October 11, session beginning at 9 a. m.

Other papers of collateral interest to physicians are:

Prof. James H. Tufts, of the Department of Philosophy of the University of Chicago, subject, "Housing of the People," October 9, session beginning at 8 p. m.

Mr. Charles F. F. Campbell, Cambridge, Mass., Superintendent Industrial Department, Massachusetts Commission for the Blind, and vice-president National Society for Workers Among the Blind, subject, "Occupations for the Blind," Monday, October 11, session beginning at 9 a. m.

George W. Jones, Superintendent School for the Blind, Jacksonville, subject, "Education of the Blind," October 11, session beginning at 9 a. m.

John Davis, formerly Superintendent of the Peoria County Almshouse, subject, "Public Care of the Poor in the Almshouse," October 12, session beginning at 9 a. m.

Sherman C. Kingsley, Superintendent United Charities of Chicago, subject, "Needed Social Legislation," October 12, session at 2 p. m.

We hope that a large number of physicians, especially from the territory near Peoria, will attend the conference and take part in the discussion of the papers. The conference is a non-political, non-sectarian organization supported by an appropriation by the State Legislature. William C. Graves, of Springfield, executive secretary of the State Board of Charities, is president, and Dr. Frank P. Norbury, of Jacksonville, recently appointed superintendent of the Kankakee Hospital for the Insane, is secretary.

COUNTY AND DISTRICT SOCIETIES

COOK COUNTY.

CHICAGO MEDICAL SOCIETY.

Regular Meeting, June 2, 1909.

A regular meeting was held June 2, 1909, with the president, A. C. Cotton, in the chair. Drs. E. C. Seufert and V. L. Sheets read a paper on "Polycythemia with Enlarged Spleen and Chronic Cyanosis," which was discussed by Drs. C. L. Mix, B. W. Sippy, and in closing by Dr. Seufert. Dr. C. A. Parker read a paper on "The Wet Dressing in Surgery." Adjourned.

DISCUSSION ON THE PAPER OF DRs. SEUFERT AND SHEETS.

Dr. Charles L. Mix:—About two years ago I looked up the literature of polycythemia and found less than one hundred cases recorded, only a few of these having been seen in this country. One case has since been reported at length by Engelbach, of St. Louis. The cases reported by Osler, and by Cabot and McKeen represent most of the cases reported in this country. An article by Anders in the *American Journal of the Medical Sciences* about a year ago added little to our knowledge on the subject. These cases being very rare, it is well worth going a long way to see one; and we are indebted to Dr. Seufert both for this opportunity and for his thorough presentation of the subject. For those who wish to look up the subject, it is well to know that the disease is described under various other names, such as erythrocytosis, hyperglobulism, polyglobulism, cyanosis, splenomegaly, and polycytosis.

I have seen a case of polycythemia which was interesting because of its course. I saw it in Springfield in consultation with Dr. Kreider. The woman was first seen by Dr. Kreider in 1901. She then complained of symptoms which resembled those ordinarily found in chlorotic anemia. There was ringing in the head and ears, headache, much dyspnea on slight exertion, especially on climbing stairs, deficiency in weight, and a very miserable and rather run-down subjective feeling. The blood count showed 5,700,000 reds, and 105 per cent. hemoglobin. Things went from bad to worse until November, 1906, when I saw the patient. On that occasion she was still complaining of intense headaches. I was struck by her peculiar color. She had the appearance of having been running very hard, but was not out of breath. There was cyanosis, particularly about the ears and lips, and her eyes were very red. We looked for an enlarged spleen and found it. The spleen was as hard as in cases of splenomegaly, harder than in many cases of malaria. It suggested the existence of some chronic infectious process. The blood examination showed 13,180,000 reds, 9,333 whites, and 115 per cent. hemoglobin. There was a disproportion between the amount of hemoglobin and the number of red cells. Practically all cases of polycythemia show a comparative reduction in the hemoglobin per corpuscle. On Dec. 4, 1906, the reds numbered 10,600,000, the whites 8,666, with a hemoglobin percentage of 120. The reds were counted by the hematocrit, which gave a larger number than the blood count, which was also made. The whites numbered 10,400, with 120 per cent. hemoglobin, Dare, and 125 per cent., Gowers. A differential count showed 17 per cent. of small lymphocytes, transitionals 1 per cent., eosinophiles 1 per cent., and polymorphonuclears, 81 per cent. There is generally a relative increase in the polymorphonuclears and in the lymphocytes, although in Dr. Seufert's two cases there was an increase in eosinophiles; and such increase in the polymorphonuclears again suggests an infectious process.

In January, 1908, the patient gave birth to a child. In the meantime she had been put on *x-ray* treatment, splenic exposures, as in cases of leukemia, and she was given arsenic. There was no real reason for this treatment, but we tried it, and whether it was the arsenic or the pregnancy or the *x-ray*, I do not know, but nevertheless the number of red cells decreased to the normal, and in April there were 4,600,000 red cells by hematocrit and 5,010,000 by count. The urine was always negative, except for a relative increase in the amount of urea. Some time after the child was born the reds again increased in amount, so that in June, 1908, they numbered 7,696,000, the whites 7,833, with 108 per cent. hemoglobin. To-day the hemoglobin percentage is between 110 and 115, the whites number 8,166, and the reds 9,740,000, according to a report just received from Dr. Kreider. Since the birth of the child she has therefore been getting worse. She has not been receiving any *x-ray* treatment of late.

Her previous history is interesting. She was married at 24. Just before that time she had a lot of boils all over her body, especially under the arm-pits; yet when these boils were lanced by a physician no pus was found in them. Evidently there was some infection which produced considerable glandular enlargement and led a physician to think that they were boils. Finally they went away and never reappeared. In 1904 she had measles, contracted from her little girl. One thing noted at the time by everybody was that she was exceedingly red, undoubtedly because of the existence then of this disease. She has never had any severe illness, except this glandular trouble and the measles. She never had any menstrual disturbance, but had one miscarriage between the first and third pregnancy. Her normal weight was 137 pounds, but when I saw her she weighed only 111 pounds, and last summer her weight fell to 105.

Subjectively, she complains chiefly of headaches, which began in 1903, and were very frequent and painful. She also was much troubled with vertigo, which began in August, 1906, and of a grinding in her ears, which was worse with each pulsation of the heart. These noises appeared, disappeared and reappeared. She also had palpitation of the heart, associated with coldness of the hands and feet. Her appetite was abnormal; she could not get enough to eat. She also complained of symptoms which might be regarded as neurasthenic. She always felt as though the sword of Damocles was hanging over her head. Her moods were affected to quite an extent, so that her spirits would get low, and she would become very much depressed. She never complained of burning sensations in the skin, except in the face, or of paresthesia, although occasionally the left side of her left foot itched at night, which probably was a subjective matter.

When I examined her I found the heart slightly hypertrophied in the left ventricle, the aortic second sound accentuated slightly. The right half of the thyroid and also the isthmus were slightly enlarged. The pulse tension was not high, if anything a little low,—estimated by guess and not by instrument. The spleen was rather large, coming down about halfway to the umbilicus, and was hard. An interesting fact was that during the course of the *x-ray* treatment the spleen diminished so much in size that it could scarcely be palpated. It increased in size later when the symptoms reappeared.

One cannot help but feel that there was and is now some infectious process at work. I believe that polycythemia is an infection, but just what infection, I do not know. The splenic enlargement, the leucocytosis and its character, the subjective disturbances and the pathologic findings all lead one to such a conclusion. The enlargement of the thyroid, I think, is accidental, and does not stand in any causal relationship with the disease.

The treatment is unknown. The prognosis is very bad. Although some cases have come to autopsy, nothing has been added to our knowledge of the disease, so that it must remain to some extent, as far as pathogenesis is concerned, an unknown affection; and as far as treatment is concerned, we are practically absolutely ignorant. In the cases that come to our notice, we shall for the present be obliged to do the best we can along empirical lines.

Dr. B. W. Sippy:—Drs. Seufert and Mix covered the ground so well that there is little to add, except in the line of diagnosis. My patient was 29 years old and came to me because of some supposed stomach trouble. His family history was good, except for insanity in the mother. He had had pneumonia at 11 and was very susceptible to taking cold. In giving his history he laid particular stress on stomach and bowel trouble. He had diarrhea and symptoms of hyperchlorhydria; total acidity was 107, free hydrochloric acid about 85. He had from twelve to twenty attacks of diarrhea during the year; sometimes associated with severe headaches and nausea. He had been treated for conjunctivitis because of the intense redness of his conjunctivæ, a symptom seen in many of these cases. When I first saw him his face was very red, his ears, fingers and hands were cyanotic. On lying down the redness and cyanosis increased in intensity. Palpating the abdomen I found an enlarged spleen. This together with the marked cyanosis caused me to suspect polycythemia. A blood examination was made at once which revealed 7,640,000 red cells, 10,000 white cells and 120 per cent. hemoglobin. He gave a history of shortness of breath and considerable muscular weakness. Heart and liver negative. The spleen came down two and a half inches below the costal arch. Vomiting was present now and then; the appetite was good, but he had been on a rather limited diet for a year because of his stomach trouble. Under the influence of an approachable diet he gained in weight from 118 to 130 pounds, and improved very much subjectively. The red cells have increased in number until now he has 9,632,000 with 130 per cent hemoglobin. He is able to do his work. The spleen has not enlarged perceptibly, and although his blood findings are worse he has improved very much subjectively.

The diagnosis is not difficult. Cases must be excluded in which there is incompetency of the heart with cyanosis and polycythemia; emphysema associated with general passive congestion and other conditions causing local blocking of the circulation and an increased number of red cells. The number of red cells may vary from 6 to 15 millions or more per cubic millimetre. The individual corpuscle is usually somewhat poor in hemoglobin but the total number of red cells being increased a high hemoglobin estimate results. Most cases show a moderate leucocytosis.

The blood findings, the enlarged spleen, the redness and cyanosis of the face, lips, ears, nose and fingers without apparent cause, make a very striking clinical picture. It is noteworthy that except for the blood findings many of the manifestations of polycythemia resemble those of splenic anemia; for example, in both diseases there is present dizziness, headache, ringing in the ears, nausea, vomiting, inaptitude for work, pulsating blood-vessels and enlarged spleen. Another similarity in these strikingly different diseases is that in both there may be the same reversion to the fetal type of bone marrow. Some doubt that the complexus of symptoms now described under the heading of polycythemia constitutes a distinct pathologic entity. A distinct clinical picture is presented, however, which runs a rather definite course. In some cases the apparent disease terminates fatally in three months, in other cases it continues longer. Dr. Mix's case has continued eight years. My patient has been ill four or five years and is subjectively better to-day than when first seen, nearly two years ago. I have not advised x-ray treatment because he is apparently doing well and as yet we do not know just what damage the x-ray may do.

Dr. Seufert (closing the discussion):—I said nothing about the treatment in my paper, as I expected that that would be brought out in the discussion. In both my cases arsenic was given, but without any benefit, and in one case in which the x-ray was tried, no good resulted. The inhalation of oxygen in the case that terminated fatally gave occasionally wonderful temporary relief for about twenty-four hours. Blood-letting was not tried, but I should think that it would give temporary relief. Several of Turk's patients were bled, five to six hundred c.c. of blood being withdrawn, and were relieved for at least two or three months. The patient I showed you to-night had very severe pain

in her finger-tips for several years, a symptom which has not been mentioned before. It disappeared after a severe uterine hemorrhage. This case has run for about twenty years. My first patient developed a goiter twenty-four years ago, and cyanotic spots about twenty years ago. I have noted that in most of the long-standing cases the spleen and liver are more enlarged than in recent cases. In my first case death resulted from gradual exhaustion. She had no children. The second patient has had five children, one of whom I treated for endocarditis and chorea. A peculiar thing is that the disease occurs mostly among Jews.

CHICAGO DERMATOLOGICAL SOCIETY.

Annual Dinner, Jan. 22, 1909.

The annual dinner of the Chicago Dermatological Society occurred on January 22 at the Chicago Athletic Club. The subject chosen for the evening's consideration was: "What Can Be Done to Provide the Children, Who Are Suffering from Skin Disorders Due to the Presence of Vegetable Parasites (chiefly ringworm and favus), with the Advantages to Be Secured in the Public Schools of Chicago." Dr. James Nevins Hyde presented a paper on the subject which was discussed by Drs. Pusey, Anthony, Ormsby, Fischkin, Baum, Quinn, Lieberthal, Schmidt, Bishop, Kessler, and McEwen.

DISCUSSION ON PAPER OF DR. HYDE.

Dr. W. C. Pusey:—I shall only take time to consider briefly the two topics to which we are especially asked to direct our attention. First, the frequency of ringworm of the scalp in our practice; second, the time required for cure. I recall only two cases of ringworm of the scalp that I have seen in my private practice during the last year. In my public practice I have seen it much more frequently and I should think a fair estimate of the number of cases that I have seen during the last year would be a score. I believe Dr. Hyde's estimate of the number of cases in the city is moderate. As to the prospects of radical cure in these cases, I do not recall a single instance in public practice where I would be willing to swear that the patient had been radically cured of ringworm of the scalp. I understand that with unending patience and persistence these cases can be cured, but the affection is apparently so trivial in the class of patients in which we frequently see it, it is almost impossible to treat it with sufficient thoroughness to be sure that the disease is eradicated.

Dr. Henry G. Anthony:—I desire to limit my remarks to a consideration of the prophylaxis of the small spore varieties of ringworm, excluding the large spore varieties which are derived from cattle.

There are two varieties of small spore ringworm; first, a form derived from cats, and possibly from dogs, which produces small spore ringworm of the scalp in children, and in adults leads to the development of cent-sized round or oval superficial scaly patches which are not circinate. They are located on the glabrous portions of the body and are usually not recognized as ringworm.

The prophylactic measures to be observed in this form are: To trace the infection to the diseased cat (which is seldom done because of the prevailing belief that no small spore ringworm is of animal origin), and to dispose of the affected animal, thus preventing the spread of the disease to other children.

The other variety is the *microsporon Audouini* which cannot be inoculated into animals. It spreads from scalp to scalp in children. It is most common in asylums for children. Orphan asylums, half-orphan asylums, and day nurseries are veritable incubators of the disease. Some of these institutions are never free from cases. The children attend the public school. The directors of some of these homes have adopted the reprehensible plan of dismissing from the institution any inmate who becomes infected after admission which, of course, disseminates the disease through the community. I have recently seen a girl, six years of age, who acquired a ringworm of the scalp in an institution after a residence there of one year. As soon as the disease was detected she was dismissed and the mother placed her in a day nursery where she is now scattering the disease.

The prophylactic measures which should be employed in the second variety of ringworm are: No child affected with ringworm of the scalp should be permitted to attend public schools without wearing a cap. All affected children in an institution should constantly wear caps; they should be provided with separate sleeping apartments, baths, washstands, and toilet articles. There should be a regular inspection of the institutions to supervise the cases. The dismissal of children who acquire the disease in institutions should be prohibited. I have checked the spread of the disease in two institutions by the use of the cap.

In the dispensary of the Children's Memorial Hospital, 1,068 children have been treated last year. There are twenty cases of small-spore ringworm of the scalp, which represents with a fair degree of accuracy the proportion of cases. These came from all parts of the city.

Dr. Oliver S. Ormsby:—The few remarks I shall make refer chiefly to the subject of ringworm of the scalp in children. The contagiousness of the disease is well known, but its seriousness is not generally appreciated by either physicians or the laity. The symptoms in a given child at a particular time do not present a serious aspect, but owing to the prolonged period of time consumed, to the constant care and attention which has to be given for its eradication in the individual, and also to the many precautions which necessarily must be observed to prevent other members of the family from becoming infected, the management of a case of ringworm becomes a matter of no small moment to the family concerned.

To realize the severity of the disease, its persistency, and the difficulty presented in its eradication one has only to see an epidemic of ringworm in a public institution of children. Several years ago with Dr. Hyde, I visited an orphan asylum for the purpose of examining the scalps of a few of the children. We discovered that more than a score of the inmates were infected with the disease and more than a year of constant and careful work was required for its complete elimination. Some two years later, the disease was re-introduced and when we were notified, we found twenty-four out of thirty-six children examined had already been infected. A careful microscopic examination is required in all cases, both in making the original diagnosis and in determining whether or not a case is entirely well. When a case is clinically well, one can very often, by careful search, find some infected hairs which show the fungus abundantly on microscopic examination and which, if left, would reinfect larger areas again. The treatment of the disease is very unsatisfactory. Anyone who has treated many cases in the public dispensaries can certify to the fact that they are only exceptionally entirely relieved. Improvement in the condition causes the child to be kept away and sooner or later the disease spreads. The happy cases are those in which a pustular folliculitis ensues which causes the hair to fall and thus relieves the disorder.

Sabouraud's statistics, recorded in the *British Journal of Dermatology*, in June, 1906, relative to the radiotherapeutic treatment of ringworm in Paris appear to show great improvement over other methods of treatment. He sums up the situation by saying that before the institution of this treatment in certain public institutions of Paris, about one hundred and ten patients were discharged annually as cured; that in 1903 and 1904, with radiotherapy, three hundred and twenty-seven were cured, and in 1905, the number increased to five hundred and four. Formerly a child thus infected occupied a hospital bed about two years, while at the time of the new treatment only a few weeks sufficed. This permitted the relinquishment of several hundred beds for other purposes and represented a large monetary saving to the state. It is a treatment, however, not devoid of danger and cannot be recommended here especially in public practice.

The cases of favus that come under my observation are not numerous. At the West Side Hospital Dispensary, with Dr. Mackey, I had three cases during the year and two others occurred in private practice. One of these was demonstrated before this society showing an ideal result from radiotherapeutic treatment. I believe that in favus this treatment is advisable in selected cases.

Dr. E. A. Fischkin:—I want to apologize for not having prepared myself with facts and figures for this discussion. I did not intend to participate in it, but the force and tenor of Dr. Hyde's address induces me to respond with a few words.

I wish to state first, that the estimation that there are a thousand children in Chicago afflicted with vegetable parasitic scalp diseases, is not overdrawn by far. In the one dispensary of the Jewish Aid Society, located in the heart of the foreign district of Chicago, I see at least a hundred children per year suffering with these diseases. There is not a day of service in which I do not see one or two cases of trichophytosis capitis and occasionally one of favus. The breeding places of these diseases are, as was pointed out here to-night, the orphan asylums of the city. They harbor often a number of trichophytic children unrecognized and untreated. I had this experience in an orphan asylum of this city which shelters about a hundred children, for which I am the attending dermatologist. The superintendent of the asylum claimed not to have a single case of ringworm in the house, but when, after he had sent to me the first case of trichophytosis capitis I asked him to bring in all the children with scaly scalps, I could select fifteen which were suspicious, and on examination of the hairs, spores were found in every case.

The question is, what shall be done with these children? The treatment of trichophytosis is comparatively successful in private practice. The cases which I can recollect now have been cured in six to ten months. One can attain a complete cure with applications of the usual parasiticides, provided the parents can be induced to employ the necessary patience and perseverance. The x-ray treatment has given me good results in a number of cases, especially in older children and where the disease was confined to single patches. I have used it on an average of fifteen to twenty exposures and I have never attempted Sabouraud's heroic treatment to cure a patch with one saturated exposure.

The question is what shall be done with the children of the poor? It goes without saying that these children are a source of infection to others, and that it is a duty of the city government as well as of the medical profession to protect the community. But how shall it be accomplished? Shall we force these children into isolation hospitals, or into the wards of Cook County Hospital? I believe that here the eternal rule of justice must be the basis of our action. The individual is an integral part of the community, and no measure can be undertaken to protect the community which shall sacrifice entirely the interests of the individual. For a disease which takes at best many months and sometimes years to eradicate, such hospitals must be hospital schools, as in London, where the children may get not only treatment but also education, and where the city employs not only physicians but also teachers. As long as the city of Chicago has no means or no desire to establish such institutions, we physicians have no place where to send these children. I believe, therefore, that our health commissioner has done the best there was to be done under the circumstances. The employment of school nurses is a step toward the solution of this problem. The deplorable results of treatment of these diseases in public practice is mainly due to the unwillingness or incapacity of parents to carry out the tedious and wearisome methods of treatment. If the city will continue to employ these nurses, who can be trained in the treatment of scalp diseases, and who from time to time can bring hair specimens to the health department laboratories for examination, it will help a great deal to eradicate the parasitic scalp diseases.

Dr. David Lieberthal:—In my private practice I have seen not more than a dozen cases of ringworm and two cases of favus of the scalp, while in my clinical and asylum work the number of ringworm cases has been considerable. Favus was found in a small minority.

About nine years ago I accepted the position of dermatologist to two homes for orphans and homeless, in one of which at that time, among one hundred and fifty inmates, sixteen cases of ringworm of the scalp were detected. Of

these twelve were treated with *x*-rays. (I believe the first treated by this method.) An average of ten exposures was required to produce a cure in ten of these. For various reasons this method was not further employed.

In the other institutions an epidemic of nearly thirty cases occurred which could be traced to one case which entered upon presentation of a physician's certificate of health. Since then a very strict examination of every applicant is made, especially regarding the condition of the scalp, by my very able associate Dr. Michael. Upon the slightest suspicion the little candidates are referred for my personal examination and admitted only if found healthy. And yet cases do occur within these homes which no doubt are infected outside. In each home about fifty children are brought for admission every year and among these there are always cases of ringworms and here and there one of favus. The rule not to admit either is strictly followed. These patients are boarded out and receive medical aid at various dispensaries. How good or quick are the results obtained may be easily imagined if we consider that the caretakers of these children are as a rule, stupid and incompetent. I have found it a wise measure to isolate these children for two or three months after apparent cure, because within that time, even though the most careful examination revealed no remnant of disease, recurrences have taken place.

I agree with Dr. Anthony that children becoming afflicted with either tinea while inmates of a home should be kept there until cured. I am certainly in favor of isolation of these patients. The question before us to-night is how can they best be cared for without being a source of danger to others and how may those of school age enjoy the benefits of proper instruction? There should be established a boarding school exclusively for such cases where they may have medical care and nursing and at the same time receive the education to which as future citizens they are justly entitled. I am not in a position to say how the means for the support of such a school could be raised, although I am perfectly certain that the governing bodies of some of the charitable homes would be glad to contribute to its maintenance. Thus they could keep such patients out of their institutions and at the same time be assured of their proper care.

Dr. William A. Quinn:—In regard to the subject under discussion, I will say that it has been my lot to come in contact with a goodly number of these cases. I believe the hot-bed of ringworm will be found in that part of Chicago of which Hull House forms the center. This is a region very thickly settled with the foreign element. Most of the cases which come to my services at Rush Medical College are brought or directed there by the visiting nurses from that district; while in my service at St. Joseph's Hospital on the north side I have seen but two cases in a year, both coming from a different locality. As regards favus, most all of the cases are to be found in the so-called Ghetto. I have at present under my care a boy, twelve years of age, who is suffering from favus and has not attended school all told, one whole year. At the beginning of each term he has started to school and before a month is dismissed. He has gone the rounds of the various hospitals and dispensaries without results and the only education he has is what he gets while selling papers on the streets. Now, I believe it would be advisable for the board of education to select some school in the 19th ward and set aside one or two rooms in which these children could be segregated during the school hours. Suitable treatment could be administered by the visiting nurses and at the same time the children could receive some little education.

Dr. Louis E. Schmidt:—My experience is entirely limited to private practice. In the past ten years I have seen but three cases of favus. Only one was treated with *x*-rays and this one was cured. As a matter of interest, I might state that the young man threatened me with a lawsuit. However, in time he was himself convinced of the good result. The two other cases remained uncured and passed from observation.

Ringworm of the scalp was seen only twelve times in the course of ten years. Four of these cases were in one family. In no instance did the patients

remain under my observation until cured. They attended school and were probably a source of contagion for many years.

Dr. R. W. Bishop:—While I see during the year quite a number of cases of favus and ringworm of the scalp, I could not report them without duplicating, as they are sent to Dr. Fischkin and recorded under his service. Nearly all are from the district known as the Ghetto.

Dr. J. B. Kessler, of Iowa City, Iowa:—I do not believe those present can appreciate the clinic we have had this afternoon as I can; I am the only one in our small city who makes any pretension of knowing anything about dermatology—when I have a case out of the ordinary I have to dig it out myself—while you can secure the opinions of some of the best dermatologists in the country at your clinical meetings.

In reference to ringworm and favus, I can sanction what has been said by several, that ringworm which has existed on the scalp for six months or longer is rarely, if ever, cured until Nature cures it; in recent cases our treatment is usually more successful. I had occasion in 1902 to investigate the so-called "barn itch." A young farmer came to me complaining of an eruption on his wrist, circular in outline, elevated, having the appearance of a small mushroom; there were no scales, but pustules marked the site of the lanugo hairs. I visited his farm and procured some of the asbestos-like scabs and crusts from the neck of several calves; examination showed the spores of the ectothrix variety of ringworm to be present.

I am of the opinion that the most frequent source of ringworm in the agricultural districts is to be found in calves, mangy dogs, and cats. Hence the advisability of subjecting the owners to a fine, as they would owners of sheep, cattle, swine and horses otherwise diseased.

Dr. Ernest L. McEwen:—In summing up the discussion of the subject of the evening, I shall consider briefly three questions, which I believe cover the essentials of the entire question and which have been answered in part at least, in the several speeches we have heard.

The first is: What has been shown to be the need? In other words, how can we say that there is a problem with respect to the education of children with infectious scalp conditions? The answer has been given in no uncertain manner to-night. Ringworm and favus are extremely contagious disorders among children and unrestrained contact of an infected child with other children is certain to lead to a rapid dissemination of the disorder. Further, both conditions, and especially favus, are extraordinarily difficult of cure. Were it not for the possibilities of cure held out by radiotherapy, one might stand all but helpless in the presence of a well-developed case of favus of the scalp. It is therefore just and right that, in the interest of the vastly larger number of sound children, those who are infected with these diseases should be barred from the schools. As to the number of cases in the city, it seems to me that Dr. Hyde's estimate is low. It is to be regretted that accurate statistics are not at our command. It is highly probable that a large number of cases could be found in the various asylums and homes for children which never become a part of the statistics. We may also assume that a number of mild cases are never presented for treatment. It is certain that the total of cases in children of a school age is not less than given in the estimates to-night, and may possibly be twice as great.

The second question is: What is the duty of the public toward these children as regards education? Though they are afflicted with a contagious scalp disorder which shuts them out of the schools, their right to a public education stands unchanged. And if the community fails to provide this education it is guilty of a double failure of duty; first, to the children themselves, and secondly, to society as a whole. For the social body cannot afford to allow any of its component individuals to develop into defectives or delinquents. Every case of favus among the children of our poorer classes represents such a possible outcome. A thirteen-year-old boy was brought recently to the Central Free Dispensary with a severe favus of the scalp. His disease began when he was six

years old and he had never been permitted to enter school. He is now a stolid, stupid boy with only a short time left for possible schooling, and is destined to join the ranks of the defectives. Another boy about the same age, bright and active, has not attended school for several years because of favus. He roams the streets, and has already appeared before the juvenile court for some minor offense. He is getting the training that will make him a delinquent. If our community is to protect itself, it must provide education facilities for these irrespective of their incontestible right to such schooling. But unfortunately nothing is being done. It is to be regretted that Superintendent Cooley, who was invited to take part in this discussion, is not with us this evening.

The third question is: What can we do toward solving the problem? is not so easily answered. Probably the first important step is to determine as nearly as possible the actual number of these cases in the city. This will require co-operative efforts on the part of the dermatologists and the city health department. Notification of scalp ringworm and favus should be made compulsory and the health department should insist upon the rule. Special attention to these conditions should be given by the school inspectors. A monthly report to the health department of cases to be found in all the orphan asylums and foundling homes should be demanded, and, to prevent spreading, these institutions should be compelled to isolate and to care for children infected within their walls until cured, as has been suggested this evening. By establishing a rigid system of notification, and by systematizing the reports, a reasonably accurate knowledge of the number of cases could be obtained. By charting the cases, an idea of their geographical distribution would be made possible. Then it might appear feasible, as has been suggested, to establish a school for these children in some district especially affected, on some trunk-line street. The suggestion of Dr. Quinn, that such a school on Halsted street in the Ghetto region would probably be accessible to a large majority of the cases, is a most excellent one. The school board should provide the building, equipment, and teachers. The instruction could not follow a strictly graded system, because of the varying age of the children. This, however, is a minor matter; some form of instruction could be given which would be valuable to all. Co-operating with the health department, the dermatologists of the city could take charge of the treatment of the children; the details of method could be worked out at another time.

Such an outline of action seems to me feasible. It means, of course, plenty of work for the skin specialist, and for the health department, and some outlay on the part of the school authorities. But when we consider what these efforts may mean in the future lives of hundreds of children, we should feel ourselves fortunate that we can render such service to those in need.

ENGLEWOOD BRANCH.

At the meeting of April 6, 1909, Dr. John B. Haeberlin presented a specimen of congenital cystic kidney. Dr. Robert Zeit gave a pathologic report of the specimen. A symposium on anesthetics, followed with papers by Drs. A. D. Bevan, on "The General Administration of Anesthetics;" H. D. Peterson, on "The Use of Ether;" John A. Meek, on "The Use of Chloroform;" F. K. Ream, on "Nitrous Oxid and Oxygen Gas," and Edison B. Fowler, on "Local Anesthesia."

CONGENITAL CYSTIC KIDNEY. REPORT OF A CLINICAL CASE.

JNO. B. HAEBERLIN, M.D., CHICAGO.

History.—J. J. Q., male, aged 35 years, of Irish parentage; born in New York; single; occupation, plumber. Both parents are dead and the cause is entirely unknown. He has two brothers, one of whom is epileptic and the other is in an insane asylum. Has two sisters, both apparently well. One sister gives a history of having had fibroids removed. So far as can be elicited from the patient there are no known family diseases. So far as he remembers he was in good health through childhood and young manhood. Fifteen years ago, when patient was 20 years old, he contracted malarial fever which lasted for four months, and

which, he stated, was an extremely severe type. He lived in Baltimore during this attack. One year following this he developed typhoid fever, which also was of severe type. The typhoid lasted approximately three months. Three years ago he was confined to a hospital in San Francisco with an extremely severe attack of stomatitis following a drinking bout. As to habits, he used alcoholic drinks to excess for a period of about ten years—from his twentieth to his thirtieth year. Used tobacco in excess until about two years ago. From his twentieth to thirtieth years he was extremely irregular, leading a dissipated life during the greater part of the time; his spree were frequent.

During the past three years, since his stay in the hospital at San Francisco, he has been in a condition of marked invalidism. Previous to this, for a period of six or eight years, he did not feel perfectly well but was at no time confined to bed. When he was in the San Francisco hospital he was informed that he had chronic Bright's disease and an enlarged spleen. Since that time he has been suffering a great deal from headaches, dizziness, loss of appetite and nausea, languidness, palpitation of the heart, dyspnea and general inability to do manual labor. During the past three years he has also noticed that the amount of urine has been excessive and he has had three distinct attacks of hematuria, the last attack having occurred about six months ago, and was severe enough to confine him to bed and cause the attending physician to give him a very unfavorable outlook. These attacks of hematuria lasted about a week. These symptoms greatly increased until his headaches became very severe, they becoming severe and constant. During the last four months vomiting has set in, which later became persistent. Along with the vomiting he has twitching of the muscles, particularly those of the upper extremity, neck and face. Yawning has developed and has become very distressing. He has also complained of the so-called "dead" hands, the absence of feeling in the hands, the sleeping of the extremities. His headaches, vomiting and twitching became so severe that on Jan. 2, 1909, upon recommendation he was removed to the hospital for treatment. Under treatment for his uremia and chronic Bright's diseases he apparently improved, so much so that he left the institution Jan. 23, 1909. After leaving the institution he was comfortable for a number of weeks, and on February 8 I again saw him. From February 8 until February 15 his symptoms of uremia gradually increased until the termination of Feb. 15, 1909.

Urinalysis shows changes that are typical of a chronic interstitial nephritis; abundant albumen and granular and hyaline casts present. The specific gravity ranged from 1001 to 1008. During the treatment of hot packs the urea, which ran on an average of from 0.2 to 0.5 per cent., gradually increased until it ran a little over 1 per cent. There was also an intermittent pyurea. During his stay at the hospital there was no hematuria.

On blood examination the findings indicate a simple secondary anemia. The hemoglobin registered 53 per cent on Dec. 20, 1908, and gradually increased until at the time of his discharge from the hospital it registered 80 per cent. The white blood corpuscles registered about 12,000 upon a number of examinations, the red blood corpuscles from 2,500,000 to 4,000,000. Differential count was not made.

The patient presents an anemic pallor. The skin has a yellowish tinge. The mucous membrane of the mouth and the conjunctiva of the eye appear markedly anemic. The general nutrition is poor. The eyes show at times a slight external strabismus when the attention is relaxed. The reflex is too light and accommodation apparently normal. The ears are negative. The tongue has a fur coating. The teeth are wide apart, particularly the upper set, and are very irregular; the distance between the teeth is extreme. On examination of the hard palate it is found extremely deeply arched and the patient unconsciously is a mouth-breather. Examination of the neck is negative. On examination of the chest the sternal protrusion is so pronounced as to be striking. Its elevation is extreme. On either side of the sternum there is a lateral groove. The respiratory excursion is not so marked on the left side as on the right, and the apex beat is visible outside of the nipple line and an interspace lower than normal (sixth).

On palpation vocal fremitus is present on the right side and increases a little on the left side to the sixth or seventh rib. Lower than this it is absent. The apex beat can be felt full and strong. The closure of the aortic and pulmonary semilunar are palpable. Percussion is negative on the right side. On the left side there is impaired resonance above the sixth rib and dullness below. The pericardial area of dullness increases laterally one finger's breadth to the right sternal border, and two fingers' breadth to the left of the nipple line. Auscultation over the right side of thorax is negative. Respiratory sounds are not so marked on the left side, both anterior and posterior. There is a marked systolic murmur at the apex of the heart transmitted above and to the left with accentuated second sounds. The aortic and pulmonary sounds are apparently equal in intensity.

Inspection of the abdomen shows marked bulging of the left lateral hypochondriac region. The left costal arch shows marked bulging. Veins over abdomen marked. On percussion the liver dullness is negative. Over the dullness in the left lateral region there is absolute dullness which can be outlined over area extending from seventh rib well down into the pelvic inlet. There was at times tympany over this area of dullness. On palpation the lower border of tumor could be felt distinctly and its anterior border partly outlined. The surface did not feel irregular. During the last week of the patient's life the size of the tumor apparently increased. Tumor did not fluctuate, was hard, no notch could be felt and it was not movable.

Examination of the genitalia was negative. There was a slight edema of the lower extremities. The extremities were always cold and at times cyanotic. The osseous system was normal, except the misshapen thorax. The glandular system was normal. The nervous reflexes were normal. Mind was quite normal. Speech was always slow. Motor impulses below normal. Sensation negative. The heart findings have been enumerated. The vessels in the extremities were somewhat hardened. Beading of the vessel walls could not be determined. Examination of the skin was negative.

Diagnosis.—The urinary findings indicated a chronic interstitial nephritis. The vascular findings were those of a mitral insufficiency with the resulting changes; a heart that also showed the results of insufficient kidneys, and a generalized arteriosclerosis. The tumor was the perplexing condition; its position was one that indicated kidney or spleen. If it were kidney it could have been a hydronephroma or a congenital cystic kidney. Sarcoma and endothelioma of the kidney would be excluded by its chronicity. Hydronephroma fluctuates, this did not fluctuate. If it were a splenic tumor things would indicate that it would be a primary splenomegalia. The points in favor of kidney involvement were, first, the urinalysis with hematuria, urinary findings being that of a chronic interstitial nephritis; the anemia; the absence of the splenic notch in the tumor; the non-mobility of the tumor. If an irregular surface could have been palpated it would also have been in favor of kidney involvement. Tympany at times indicated an overlapped colon. The points in favor of the tumor being of splenic origin were, first, the position of the tumor was one that well could have simulated the spleen, in fact, in large tumors of either the kidney or spleen their anatomical position is practically alike with the exception that the kidney is overlapped by the colon. In a primary splenomegalia we frequently get an anemia of the secondary type. The age of the patient and the chronicity of the enlargement might well occur in primary splenomegalia. The congenital cystic kidney is rarely found in an adult so old, especially a tumor of this size. The antemortem diagnosis lay between a congenital cystic kidney and a primary splenomegalia. The antemortem points in favor of a congenital cystic kidney were the family history of degeneracy and the stigmata of degeneracy which were presented on physical examination along with points already enumerated. The things omitted, which might have been of some aid in diagnosis, were the x-ray, the aspirating needle, the catheterization of the ureters, and lastly, but not advisable in this case, the exploratory incision.

The removal of the tumor was the only thing permitted, and upon removal it was found to weigh 8 pounds and 12 ounces, and the size was 14 by 7 by 4½

inches. The kidney was handled and examined for a period of 24 hours before Professor Zeit examined the specimen. Many delicate cysts were ruptured and much fluid lost during this interval. The specimen is stationed at the Northwestern University Medical School's Pathological Laboratory.

PATHOLOGIC REPORT.

F. ROBERT ZEIT, M.D., CHICAGO.

The diagnosis of the kidney specimen presented to our laboratory is "congenital cystic kidney. The kidney weighs 3,000 gr. (normal 150 gr.) ; length, 29 c.m. (normal, 11.5 c.m.) ; breadth, 15 c.m. (normal, 5.5 c.m.) ; thickness, 11 c.m. (normal, 3.5 c.c.). I do not know of another kidney of this type which was as large. There are thousands of cysts, varying in size from that of a pea to a pigeon's egg. The contents of these cysts is mostly of a yellowish to dark brown colloid material very similar to that found in multilocular adenocystomata of the ovary.

The etiology of this condition is unknown. The disease runs in families at times and may also affect the liver and pancreas. The nature of the affection is that of atresia of the papillæ and three different etiologic factors are claimed according to the different authors who have studied this disease.

1. Inflammation theory. Nephritis papillaris, changes in arteriolæ rectæ or primary fibrous nephritis.

2. Malformation theory. Anomaly of development. Uriniferous tubules closed with formation of retention cysts.

3. Neoplasm theory. Cystic kidney to be considered as a multilocular adenocystoma. In this case the cysts are supposed to be caused by atypical proliferations of glands which develop in the originally normal or malformed kidney.

SYMPOSIUM ON ANESTHETICS.

THE USE OF CHLOROFORM.

JOSEPH A. MEEK, M.D., CHICAGO.

However much the various anesthetics may be discussed there is every probability that extreme views as to their respective merits will continue to prevail. There are now and there will continue to be physicians and surgeons, who would exclude chloroform altogether from their own use, and would almost deny the right of others to employ it under any circumstances. I should like, therefore, to be considered not so much an advocate as an apologist for the use of chloroform by the private practitioner. Any reference to its use in hospital practice and all reference to hospital statistics I shall endeavor to avoid.

At the outset I think I may assume that there are three things about chloroform that are admitted by all objectors even the most strenuous. First, its extreme efficiency for the purposes of a general anesthetic. Second, its superior agreeableness to the patient. Third, its extreme convenience to the daily visiting doctor himself. These three important points are so far removed from controversy that they need no argument, illustration or discussion. They are especially appreciated by the average country physician.

What remains then is the real ground for all objections, the alleged risks assumed in its employment. Let us admit then that as regards safety, chloroform is not what we want. What we need is an anesthetic that could be used on any patient, of any age, in any condition, for any required length of time, by any physician or lay assistant, with or without experience, and without incurring any risk whatever. Such an ideal drug chloroform is not. Its most enthusiastic friends do not contend that it is universally and automatically safe. Nevertheless it approaches nearer that standard than could reasonably have been expected of an anesthetic so irresistibly efficient as it is. As proof of this assertion allow me to refer to the marvellous immunity of the chloroform fiends, I mean the victims of the chloroform habit, victims of the varying degrees of addiction who use it on themselves by daily or nightly or monthly inhalations or irregularly, whenever some paroxysm of asthma or hepatic or renal colic, neuralgia, or neurosis, seems to them to make it indispensable.

Do these people die of self-induced anesthesia? I never knew of a case and I never heard of any one that did. A reckless habit and in its higher degrees a pernicious habit well calculated to disintegrate both soul and body. But the drug didn't kill when the habit was forming and it doesn't kill after the habit is formed. How are we to account for this exemption from the sudden surprises of chloroform? The answer that they do not take enough is not adequate. They take enough to go to sleep. They take enough to go sound asleep—and it is during this process of going to sleep that nearly all of the fatal chloroform accidents have happened. They take enough to go to sleep but they do not usually take more than they want. There is somewhere an irritation that the chloroform relieves. The effect is agreeable. There is no fear in advance. There is only the desire for the effect of the toxicant and during the inhalation there is no feeling of alarm excited by taking it too rapidly. So long as there is any degree of self-control retained the administration is regulated by their sensations. After control is lost they are frequently exposed to the dangers of profound narcosis. Sooner or later they rally, and why? One reason perhaps is the comparative absence of shock. The reason there is no shock is the absence of violence in the method of administration.

There is no undue haste. The transition is gradual, so gradual that the vital mechanism has time to adjust itself automatically to the business of defense. The time consumed may be long or short but there is at least time enough for the adjustment to be made. A principle in this automatic self-adjustment may often be the persistence of the source of irritation that called for the chloroform in the first instance. This source of irritation may become dormant but not dead and tends persistently to revive. This principle explains the frequent tolerance of incredible quantities of this dangerous drug.

It is this principle that protects and has protected the patients in thousands of accidents, injuries, and emergencies, when doctors drunk and doctors sober have slung the poison right and left with easy indifference. To put this in another form, the conditions that tend to produce pain, persistent to a greater or less degree under the chloroform, stimulate the cardiac nerves and help to keep the patient alive in spite of the chloroform.

Without doubt suicide can be accomplished by chloroform inhalation if deliberately and intelligently planned. Very likely, too, unintentional suicide has at some time or other been the result of an attempt at self-induced anesthesia. I shouldn't want to try it myself but then I am afraid of chloroform, and besides I have no abnormal source of irritation anywhere in me to serve as a means of protection in trying the experiment. These addicts that I have cited have the advantage of me in both of these points, and their history shows that when graduated to the sensations of the subject chloroform may be taken with impunity as to immediately fatal results. But it is not convincing to the addicts themselves with relation to our professional use of it. They are all sure it is safe in their own hands but they are very suspicious of its safety in mine. If any degree of tolerance is ever acquired by the habitual use of the drug, they themselves do not seem to know it.

The morphin fiend is not afraid you will over-dose him. The chloroform fiend is not willing that you should dose him at all. I speak from experience. I have been turned down by them and turned down hard. In the case of a poor man who greatly needed an operation I offered to secure the service of a capable surgeon and give him the anesthetic myself all gratuitously but to no purpose. The offer was submitted to him from time to time during a period of fifteen years, but he never got up confidence enough in me to let me hold the bottle, and perhaps he was right; very likely I should have killed him. He is now dead, nor did he die of chloroform narcosis. If he had died in my hands during the anesthesia I think I should have said it was not the chloroform but mortal fear of me that produced or at least determined the fatal result.

I think that fear is fully as fatal as chloroform, and it is about the worst ingredient that you can mix with it. When the two are combined it is not quite fair to lay the blame wholly on one or the other until the case has been

investigated. Without investigating if you simply charge up the fatalities to the mixture you will probably be right. This is merely a guess on my part. I have never seen but one person die under chloroform and that was at the end of a long operation. She had entered the operating room with a presentiment of death, having just bade her husband a touching last farewell.

The previous mental condition was perhaps only one of several factors in her case, but from the circumstances I was induced to believe it was not the least important one. The chloroform was a factor of course, but there was no sudden arrest either of the circulation or respiration, simply a death from exhaustion. Whatever may have been the cause of death in this case I still maintain that when fear is absent all other dangers are diminished.

For half a century all over this country, especially in the west and south, an impure chloroform has been administered by physicians and dentists; also by fake doctors and fake dentists and ignorant lay assistants, by people whose chief qualification was their confidence, to patients whose chief protection was their ignorance of fear in the thousands of instances, and with an infrequency of accidents that is simply incredible and almost unaccountable. Singular how fortune favors the fakes. It is not among them that fear becomes a force that kills. It is among the learned, the skilled and the trained, among men fitted and outfitted for every emergency. It was not in a remote corner or nook of the woods, but in a high grade modern hospital that the word, "good-bye," became the means of frightening a man to death.

The magnificent hospital equipment and elaborate preparations and precautions taken in advance of the operation which ought to have filled the patient with confidence, excited in his timorous spirit only forebodings of impending doom. After he had been satisfactorily narcotized and the operation was progressing happily, who could have anticipated that a casual word would have revived the destroying demon of fear?

It must have been in a paroxysm of partial consciousness that he caught the word and repeated it. He continued to repeat it with continually increasing excitement till his fearful dream was realized and his nightmare of terror had done its fatal work. We are not informed as to what efforts were made to dispel his delirium nor do we know that it could have been dispelled, but we almost know that such a tragedy could not have happened among a set of fakes. The never failing faith in fakes and faking would have been a guarantee against it. It is preposterous, of course, that patients will take alarm at the preparations employed to secure their safety, but it is not unnatural.

A highly educated and orthodox German physician at Cologne was too conscientious and cautious to use chloroform or any anesthetic to assist him in reducing a hernia, till he had made tedious but necessary preparations for a possible operation. Meanwhile the patient, alarmed by these serious precautionary measures sent for a half trained, disreputable Yankee doctor who relieved the situation in a few minutes by posture and primary chloroform anesthesia. You would think that the respectable German graduate would have taken a lesson from this, but he didn't. He was simply disgusted at being displaced and disgraced by a man who had been faking so long that he was exempt from the operation of the medical license law. He was hurt at being treated disrespectfully, but he was grieved that his friend, the patient, should rashly, recklessly and irreligiously have risked his life by taking a few whiffs of chloroform.

Now why should an intelligent regular relegate to his irregular rival an anesthetic agent so pre-eminently adapted to the requirements of the general practitioner? There is no reason whatever except his own timidity and the timidity he infuses into his patient. He turns over to his inferior an agent that has the widest range of adaptability, one that can be limited to the mildest degree of anesthesia or extended to the profoundest depth of surgical narcosis, an agent whose effects can be shaded to meet every age and condition and made almost as agreeable as it is efficient, an instrument of precision which does

precisely the work it is intended to do, and the reason he discards this instrument is that it has too keen an edge.

Every doctor has a right to exercise his preference as far as his own cases are concerned and if he chooses to relinquish his best resources to his inferiors that is his own affair. But when he proceeds further and denounces the right of others to use it, he ought to have some better argument to bring forward than a series of experiments on dogs. I think I have seen chloroform administered by more than a thousand persons who were neither doctors nor nurses, with a sympathy and tact that were instinctive rather than intelligent and without a single accident notwithstanding the fact that it is dangerous to dogs. Still if a doctor is afraid of it he shouldn't use it. His distrust will infect his patient. The same should be said of a doctor who knows in his soul that he is afraid of a knife.

We have other anesthetic agents, enough to go around and there are more to follow. No doubt the best is yet to come. But for a little while longer chloroform will have a place in private practice, not for the benefit of the strong and robust patient in the prime of life who can stand any anesthetic, but rather in the interest of the weak and frail, the young and tender, the old and feeble,—for the sake of these and also some others the family doctor will still need it in his business.

NITROUS OXID AND OXYGEN IN GENERAL SURGERY.

F. K. REAM, M.D., D.D.S., CHICAGO.

It shall be the purpose of this short paper to consider nitrous oxid and oxygen from the present clinical standpoint, omitting the physiologic and chemic action, as well as the blood changes, all of which are treated extensively in a recent article entitled "The Blood Changes Incident to Surgical Anesthesia, with Special Reference to Those Induced by Nitrous Oxid," from the Surgical Clinic of Dr. A. D. Bevan, Presbyterian Hospital, and the Laboratory of Experimental Therapeutics, S. A. Mathews, director, the University of Chicago, and extracts from an article with the above title by Drs. Walter W. Hamburger and Fred E. Ewing, Chicago, presented in the Section on Surgery and Anatomy of the American Medical Association at the Chicago session, in June, 1908. This paper was a part of the report of the Commission on Anesthesia of the American Medical Association. The article appears in full in the *Transactions of the Section*, Sept. 12, 1908, vol. 51.

In 1844 Dr. Horace Wells, of Hartford, Conn., set the world agog over his introduction of nitrous oxid as an anesthetic in general surgery. The following four years brought the anesthetic properties of ether and chloroform to the front; thus modern anesthesia was developed practically in the last half century. Sir Humphrey Davy advocated the use of nitrous oxid to relieve pain as early as 1800, but its anesthetic properties were not developed until nearly fifty years later.

Early efforts in public demonstrations proved futile until 1863, when Dr. J. Q. Colton reported 20,000 administrations without a fatality. Later on, J. B. Clover pointed out the advantages of combining air and presented improved methods of administering nitrous oxid gas. He also first suggested the use of gas as an induction to ether. Though these were epoch-making years in anesthesia, it took the Raphael touch of a Chicago physician, Dr. E. Andrews, in 1868, to add the agent pure oxygen, which has been instrumental in robbing anesthesia of its horrors and dangers, until to-day it is safe to assume that it is safer to take nitrous oxid and oxygen than to ride in an automobile or cross a thoroughfare in Chicago on a busy day.

It is estimated that in Greater New York nitrous oxid is administered 800 times daily, which totals 219,000 administrations annually; in ten years 2,190,000, and within these ten years, 1895 to 1905, two deaths have occurred from nitrous oxid. One physician in Philadelphia reports 287,000 administrations for tooth extractions in the past twenty-five years without a single fatality. A

photograph here exhibited of a roll containing over 600,000 names and addresses of patients operated on in the Colton Dental Association, Cooper Institute, New York, is of astonishing magnitude. These statistics of nitrous oxid, though large, to my mind, are not convincing proof of safety, as they record very short operations and without the addition of pure oxygen.

It is very evident that the danger of nitrous oxid increases in ratio to the time it is prolonged and diminishes with the admixture of pure oxygen. The mortality of nitrous oxid has been greatly increased in the past few years, owing to the effort on the part of anesthetists to substitute common air for pure oxygen. Vitiated air in the crowded surgical room is not an oxygenating agent, and should never be used if pure oxygen can be obtained. The true anesthetic properties of nitrous oxid cannot be evenly maintained without pure oxygen, and why physicians will continue to subject patients to the dangers of gas anesthesia without pure oxygen I cannot conceive. Cyanosis may be overcome eight times quicker with pure oxygen than common air, which contains a large amount of nitrogen. Numerous experiments conclusively prove the value of pure oxygen. Mr. Martin confined a dog in a reservoir for three days, breathing 85 per cent. nitrous oxid and 15 per cent. oxygen, showing that the gases were respirable for an indefinite period without injury to respiration or circulation. Sprouting seeds fail to grow when confined in the gas alone, but will germinate when pure oxygen is added.

The range of usefulness of nitrous oxid and oxygen seems to be unlimited, and the fact that hospitals and surgeons are using this anesthetic in a greatly increased number of cases, points to its almost universal adoption. Indeed, it is high time, as the primary and secondary effects of chloroform and ether are appalling and seldom reported. A lamentable fact is that many operations are pronounced successful, though the patient may die from a post-operative pneumonia or renal complications in a few days. The great majority of deaths in prostatectomies occur the first forty-eight hours following operations. Nothing is more feared by the laparotomist than complete paralysis of the bowels, due to general anesthesia and the subsequent inactivity of the kidneys.

In obstetric practice this anesthetic is excellent, because we may obtain analgesia and even anesthesia without muscular relaxations or disturbance of the normal course of labor. Uterine contraction is not in the least interrupted by the use of this anesthetic according to the following methods: On the approach of labor pains the patient is permitted to inhale three or four breaths, placing her in a state of analgesia; the inhaler is then removed, and the process is repeated as often as necessary. Should it be desired to retard labor a small percentage of chloroform may be added. Owing to the rapidity of the action of the gas and its rapid elimination it stands foremost as an obstetric adjuvant.

Statistics of my own cases include several thousand administrations during eighteen years' practice; 150 anesthetics for Chicago surgeons the past two years. Chloroform and ether anesthesia in the majority of these cases were markedly contraindicated and included vaginal and abdominal hysterectomies, laparotomies, appendectomies, perineorrhaphies, cystotomies, nephrolithotomies, nephrectomies, thyroidectomies, tonsillectomies, numerous rectal operations, labor cases and most every operation known to surgery, arterio-sclerotic and atheromatous patients, patients with cerebral heart and respiratory lesions, patients from three to ninety-two years of age; anesthesia from fifteen minutes to two and a half hours. There was not a death or collapse in a single case, and I ask what greater plaudits for nitrous oxid and oxygen anesthesia could be enumerated.

This anesthetic may be administered entirely by the nose in tonsillectomy and surgery about the mouth. Exhaling valves may be closed and the gas forced to the patient without regard to inhalation and respiration.

The great barrier as claimed by the surgeon to the universal adoption of this, the foremost anesthetic, is the expense. In rebuttal to this claim there never has been a time when the surgeon was as well paid for his services as at the present time, and for him to accept a large fee and to give his patient an inferior anesthetic and submit him to the nausea, danger and great suffering is a gross injustice.

In many hospitals surgeons are employing old methods of anesthesia because their anesthetics are administered by a sister or interne without expense, save the small fee for the operating room. Hundreds of patients would be very willing to pay the increased expense if the surgeon would inform them they could escape the primary and secondary effects of anesthesia and attendant nausea, by taking the superior anesthetic.

Again, the action of nitrous oxid is confounded with the cyanosis of chloroform and ether, which is produced from an entirely different cause and is not present when pure oxygen is used. Many surgeons have failed and discarded this anesthetic, because they have employed the inexperienced interne or nurse, who pays more attention to the operation than the anesthetic with which they have been entrusted. Expert attention and the proper apparatus is first required, and then the closest attention, much greater than with any other anesthetic. Every respiration must be accounted for and all other symptoms of the patient's condition besides. No anesthetist can divide his attention and give a safe nitrous oxid and oxygen anesthetic. Much closer attention is required than with any other method. Surgeons have complained of the lack of relaxation when nitrous oxid was administered, and here is where the skill of the anesthetist with the right kind of apparatus and pure oxygen is severely tested.

Nitrous oxid and oxygen may be substituted for chloroform and ether if the anesthetic is first preceded by a hypodermic of morphin and atropin. This seems to supply the missing link and makes it possible to obtain quick and tranquil anesthesia. The sepolamin-morphin sequence is not undesirable, but observation leads to the selection of the former, which is not followed by the long sleep and stupor. The action of morphin on the brain producing anemia undoubtedly counteracts the cerebral congestion incident to nitrous oxid, and at the same time lessens activity of the cerebral cells and their demand for blood.

In short operations, if the morphin-atropin sequence is not desired, a small per cent. of chloroform or ether vapor may be added to the gas, through the same inhaler. Thus quick control of the patient is obtained. The apparatus which I use in anesthetics was invented by Dr. Chas. K. Teter, of Cleveland, and, though expensive it be, it is superior to all others now on the market. With this apparatus (now exhibited) it is possible to administer nitrous oxid, ether and chloroform from the same transparent mask. The anesthetic is passed through a hot water coil, and reaches the patient at body temperature, which results in the saving of at least 25 per cent. of the gases and undoubtedly lessens the possibility of pneumonia. The anesthetic is much more respirable, free from irritating properties and the patients experience apparently a natural and normal sleep.

I herewith briefly present a few average abstracted cases and reports of surgeons for whom I have administered this anesthetic:

Patient, boy, aged $3\frac{1}{2}$ years, with nervous chills and sinking spells. Attacks would often recur and last from four to five hours, with sudden rise of temperature, 105 to 107; cyanotic, very weak; pulse 160 to 170 per minute; respiration labored, 40 or more per minute; after a gradual decrease from 8 to 10 per minute, "Cheyne Stokes respiration;" extremities cold. Dr. J. C. Beck, the attending surgeon, sends the following report: Diagnosis, scarlet fever, running usual course, with complication of acute otitis media, bilateral swelling on right side of neck made up of 3 or 4 separate movable glands; ulcerative rhinitis; bloody discharges, and a double otitis media purulenta. Discharge from right ear greater than left; no odor; perforation of both tympani, good size, centrally located. Microscopic examination showed few micro-organisms, mostly staphylococci. Dr. Adolph Gehrmann made blood examination, which did not show as high degree of leucocytosis as expected. Urinary paralysis negative. Discharge and swelling in neck increasing on right side, and being suspicious of an associated thrombophlebitis of the right internal jugular vein, operation was decided on at 8:30 p. m. Under gas-oxygen anesthetic administered by Dr. Ream the usual exploration of the mastoid antrum was done. Whitting incision to follow fistula which was surrounded by perisinusoidal abscess infection and a distinct thrombus of sinus. Incision carried from tip of mastoid to within one inch of sterno-clavicular articu-

lation, finding partially collapsed internal jugular vein, this was doubly ligated and cut between ligatures. Portion of cephalic end of vein was dissected upward and contributory branches tied off, but remains of jugular could not be dissected owing to enlargement and infiltration of glands. Going back to original field of thrombotic sinus, I incised it for about an inch and removed clot both ways far as possible towards torcular Herophili until blood came from that region and cleaned out clot toward bulb. Drain inserted towards jugular bulb and mastoid antrum. Patient put to bed in very poor condition so far as pulse and respiration was concerned. Dr. Ream remained the entire night, administered pure oxygen, patient responded beautifully without any deleterious results from anesthetic. Anesthesia under gas and oxygen was satisfactory, causing no delay to operation, patient was apparently in no danger at any time from anesthetic.

During convalescence nine injections of antistreptococcic serum, at intervals of twelve hours, were given with decided beneficial effects. Septic attacks disappeared in two weeks, evening temperature running 100 or 101, fifth week patient recovering, though much swelling in right leg and fluctuation at one point, which is disappearing.

Dr. L. W. Bremmerman, Oak Park Hospital, operated in the following cases during January, 1909: M. O., aged 74; suprapubic prostatectomy; patient weak; suppression of urine; kidneys infected; bladder full of pus; arteries sclerotic; heart overacting with aortic murmur; ether and chloroform both contraindicated. Warm gas and oxygen was administered; pulse beginning of anesthetic 88, at close 110 and of excellent quality. Patient entirely recovered from anesthesia before leaving operating room; no post-anesthetic nausea or vomiting. Recovery uninterrupted and patient going to office daily.

Mr. M., aged 76; arteries sclerosed; suprapubic prostatectomy; warm gas and oxygen anesthetic; pulse preceding operation 80, following anesthetic 100; recovery complete before leaving operating room; no nausea or vomiting. Recovery uninterrupted. When bladder was cut into patient showed signs of collapse, which was overcome instantly by increasing percentage of oxygen.

Mrs. M., aged 48; diagnosis, multiple papilloma of bladder; suprapubic operation; warm gas and oxygen anesthesia, 1 hour and 15 min. Pulse at beginning 90, at close 110, general condition following operation excellent, with exception of slight nausea, which could be accounted for as the patient claimed calomel produced same effect, which was administered night before operation, and nausea was present before anesthetic was administered.

Mr. P., aged 76; Drs. Loewy, Schmidt and Willard, operating at Oak Park Hospital, in February, 1909; prostatectomy, 1 hour and 10 minutes; morphin and atropin preceding anesthetic. Condition of patient excellent during anesthetic.

Mrs. A., aged 56; Drs. Rogers and Reynolds, operating at Willard Hospital; ventral hernia, 1 hour and 10 minutes. Patient weighed nearly three hundred pounds, greatly increasing difficulties of operation. Complications made this a most tedious operation. Had a fatty heart. Morphin 1/4 and atropin 1/100 gr. was given hypodermically one-half hour before operation. Superheated nitrous oxid and oxygen was administered throughout the operation. Relaxation perfect, no nausea or vomiting or shock during or after anesthetic. Patient awakened in five minutes and conversed rationally. Surgeons agreed chloroform and ether greatly contraindicated in this case.

Case 160; patient prominent physician; operated on by Dr. Truman W. Brophy, in November, 1909, Michael Reese Hospital, for removal of badly impacted lower third molar; time, 1 hour and 10 minutes; gas and oxygen was forced through nose throughout operation, in recumbent position. Some difficulty was encountered in the beginning in getting control of patient, but after being well anesthetized, the operation was completed. This was a severe test of the anesthetic owing to excessive hemorrhage in the mouth and extensive dissection necessary for removal of tooth. Patient was awake in one minute after operation.

Patient, Dr. John Wesener, Chicago, surgeons Drs. Carl Beck and J. B. Murphy. Operation for severe case of gangrenous appendix. To quote from Dr.

Wesener's letter, "The anesthetic, warm nitrous oxid and oxygen, was administered for thirty-five minutes, and during all that time I was under complete anesthesia. On awakening, which took place on the operating table, I noticed no bad effects, suffered no nausea nor any bad symptoms which are so common to other anesthetics."

Patient, female, 92 years. In 1907, Dr. Carl Doege, Marshfield, Wis., and Dr. C. B. Powell, Chicago, operated for malignant cervical glands for one hour and fifteen minutes. Owing to extreme age of patient and impaired respiration due to pressure from growth, the operation was deferred for years in fear of anesthetic. The patient took the anesthetic in an ideal manner, making a splendid recovery and walked to her room twenty minutes after operation, showing no ill effects.

Dr. W. F. Scott, Maywood, Ill., reports two anesthetics recently given at the Oak Park Hospital as follows: "In so far as it is possible for me to determine, it is pretty nearly ideal. In Dr. Mathews' case (excision of both lobes of thyroid) for removal of large cystic goitre, a two-hours operation, the tachycardia was very marked and conditions generally contraindicated general anesthesia. The breast amputation case was one who had had two other anesthetics previously followed each time by two days of ether nausea. Neither of these cases had any post-anesthetic nausea and were practically free of the discomfort which usually follows the ordinary anesthetic.

"As to the comparative dangers of the method used by you and that generally used, of course two cases would not permit me to express an opinion. I will say, however, that the anesthetic was sufficiently complete at all times and that they were always in safe condition. One other point that attracted me was the complete absence of mucous respiration."

LOCAL ANESTHESIA.

EDSON B. FOWLER, M.D., CHICAGO.

The subject may be divided into anesthesia produced by direct applications to the skin, mucous or serous membranes, and anesthesia produced by injection. A part only of the latter division will be considered under the headings of anesthesia with little or no infiltration, e. g., spinal anesthesia, anesthesia with infiltration. Infiltration is divided into local or field work and nerve blocking.

As far as I know, Corning, an American, in 1855, published the first article on "Spinal Anesthesia and Local Medication of the Cord." Quincke, in Berlin, in 1891 had used spinal puncture to relieve pain, and from this Bier conceived the idea of spinal anesthesia. He used cocaine on himself and an assistant. Disagreeable effects coincident with the anesthesia eventually led to the discovery of a local anesthetic less toxic. Numerous products in the main less toxic than cocaine have been introduced, nevertheless spinal anesthesia has not been regarded with so great favor in this country as it has been abroad. Hüster, of Marburg, is of the opinion that Americans have been slow to take it up because of the early unfortunate results, such as failure to obtain anesthesia, paralysis, serious headaches, deaths, etc. But he believes that most of the old objections, because they are controllable, are not now valid. Among those who have used spinal anesthesia somewhat extensively are Tuffier, of Paris, who reported 530 cases with no deaths; Kümmel, of Hamburg, who reported 186 cases in patients from five to eighty years of age with no deaths; Kronig, who reported 1,000 cases and no deaths that could be "fairly attributed to the anesthetic;" Döderlein, who reported 44; Von Rothorn, of Heidelberg, who reported 107 cases with no unfortunate results, and Gaston, who has collected 5,350 cases from the literature with five deaths. This does not seem to be a bad showing compared with that of chloroform and ether when we remember that spinal anesthesia is used in some cases where there is fear of employing ether or chloroform.

In considering infiltration anesthesia, whether for local work or blocking nerves, it is well to remember how much of the solution in hand may safely be injected without producing serious effects, local or general. The various 'caines in solution are increasingly toxic in proportion to their concentration, i. e., the

actual amount of novocain suggested as a maximum dose in a 1 per cent. solution is 3 grains. The amount of the same drug in a 1/4 per cent. solution is 6 grains. On the other hand, adrenalin or suprarenin lessens the general toxic effect of the 'caines by localizing the drug and allowing it to enter the general circulation gradually. Braun has shown that on animals a lethal injection for the animal will be harmless if a small amount of adrenalin chlorid is added to the solution. Barker has used 200 c.c. of B-eucain, 2 to 1,000, with no toxic results. He asserts adrenalin chlorid delays the anesthesia 15 to 60 minutes after the infiltration. I have not been able to confirm this in my work, but on the contrary anesthesia seemed to be produced at once in the area infiltrated but not so far as the tissues are blanched, which blanching soon extends one-fourth inch to one-half inch beyond the zone of actual infiltration.

It is well to use freshly prepared solutions, although Struthers, of Leith, uses a stock solution of novocaine which he reesterilizes as needed. He asserts the solution keeps well for months. Adrenalin chlorid will not stand boiling, sunlight, or retain its properties if kept in solution with the various 'caines. It becomes inert probably within an hour. The synthetic product suprarenin is not decomposed so readily, at least it bears boiling fairly well and is fully as powerful in its action as adrenalin chlorid.

The solutions used for infiltration are numerous, but the limits of this paper will permit us to consider only a few of those which have been in our experience satisfactory. A solution devised by R. M. Parker after some experimental work (ILL. STATE MED. JOUR.) has given good results. Its formula is:

B-eucain	0.2
Adrenalin chlorid.....	0.8 to be added at time of use.
Sodium chlorid	0.6
Aqua	100.0

B-eucain is irritating to the tissues, more so perhaps than most of the 'caines. I have used recently novocain in place of B-eucain, tropacocain, stovain, alypin, etc., because it is perhaps least toxic and yet gives a satisfactory anesthesia. Experiments were performed to test a few solutions. The same quantity was used in each case. The skin of the arm was in each instance infiltrated to the size of a dime.

Experiment 1.—Novocain	0.2
Normal salt solution.....	100.0

No pain was produced by the infiltrating aside from the first needle prick. The infiltrated area showed a blanched weal. Anesthesia was complete to the edge of weal. Most of the anesthesia and blanched condition disappeared in ten minutes.

Experiment 2.—Normal salt solution. The injection produced moderate pain. Anesthesia lasted about 5 minutes.

Experiment 3.—Solution—Novocain	0.2
Suprarenin.....	.. three drops 1 to 1,000 to the ounce added at the time of injection.
Sodium chlorid.	0.6
Aqua	100.0

Infiltration gave a blanched weal and in a few minutes a blanched area one-fourth to one-half inch beyond the zone of infiltration. Complete anesthesia occurred at once in the infiltrated area. One-half hour after the infiltration the area of anesthesia had extended peripherally from the edge of the weal about one-eighth inch and extended no farther. Total anesthesia varies with individuals; in this case it lasted one and a half hours or longer than in some cases.

Experiment 4.—Consisted in using:

B-eucain	0.2
Adrenalin chlorid	0.8 added ten days before.
Sodium chlorid	0.6
Aqua	100.0

Result, total anesthesia with at first a burning itching sensation. Redness and moderate swelling in addition to the infiltration appeared in five to ten minutes. There was no blanched zone except in the area of infiltration and due to the pressure of the infiltrating fluid as it corresponded in duration and appearance to the weal and blanching produced by the normal salt solution in Experiment 2. There was no blanching beyond the edge of the infiltrated weal as is the case with active suprarenin or adrenalin. The duration of the anesthesia was about ten minutes, which corresponds to the duration of novocain or B-eucain when used alone. Adrenalin chlorid was inert.

Experiment 5.—Solution used was:

B-eucain	0.2
Adrenalin chlorid	0.8 added at the time.
Sodium chlorid	0.6
Aqua	100.0

The results of this test differed but little from Experiment 3, where

Novocain	0.2
Suprarenin	3.0 drops to ounce
Sodium chlorid	0.6
Aqua	100.0 was used.

except the injection showed pink for about twenty minutes with a blanched zone beyond the infiltrated area. The pink became blanched after twenty minutes. Anesthesia lasted about one and a half hours.

Experiment 6 consisted in using a solution of

B-eucain	0.2
Suprarenin	3.0 drops to ounce added ten hours before test.
Sodium chlorid	0.6
Aqua	100.0

Suprarenin was inert. Anesthesia lasted about ten to fifteen minutes.

Experiment 7.—Novocain	0.2
Sodium chlorid	0.6
Aqua to	30.0

Boiled three minutes in test tube, when three drops suprarenin was added and boiled one minute. Injection weal only was blanched which gave way to a pink color in five minutes. Anesthesia about five minutes, showing the suprarenin was rendered inert when boiled with the novocain at the time of the operation.

Experiment 8.—Normal salt solution plus three drops of suprarenin to the ounce was boiled in a test tube two minutes. Weal and area beyond one-half inch was blanched about forty-five minutes. A shorter time than when suprarenin is not boiled. See Experiment 11.

Experiment 9.—Boiled novocain solution	0.2
Sodium chlorid	0.6
Aqua	100.0

Anesthesia about eight minutes' duration.

Experiment 10.—Novocain salt solution same as Experiment 9. Not boiled. Anesthesia about eight minutes.

Experiment 11.—Suprarenin solution	0.2
Sodium chlorid	0.6
Aqua	100.0

Not boiled. Blanching lasted one and a half hours, well marked.

The results of the experiments would tend to show that novocain is less irritating than B-eucain and that boiling does not seem to decompose it; that adrenalin chlorid and suprarenin are rendered inert soon after they are added to B-eucain or novocain solutions; that boiling suprarenin in an ordinary glass test tube with normal salt solution two minutes appeared to limit its physiological action one-half. The solution used in Experiment 3 seems most satisfactory, since it is non-toxic, and 200 c.c. can be used without fear of local or general ill results. The novocain can be boiled and the suprarenin, if boiled alone and added at the moment of using will retain half and perhaps more of its characteristic properties.

CRAWFORD COUNTY.

The Crawford County Medical Society met for its regular bi-monthly meeting in the Carnegie Library September 9. The following members were present: Drs. H. N. Rafferty, Midgett, Price, Newlin, T. N. Rafferty, Kasdorf, Lowe, Voorheis, Lindsay and Firebaugh. Dr. Kasdorf read an excellent paper on "Malaria." Dr. L. R. Illyes was to have presented a paper on "Bronchitis and Bronchopneumonia," but was not present and did not send the paper to the secretary. After the business meeting the society adjourned.

A. LYMAN LOWE, Secretary.

JACKSON COUNTY.

The Jackson County Medical Society met in the parlors of St. Andrews Hospital, at Murphysboro, Ill., Sept. 16, 1909. Those present were Drs. Sabine, Molz, Roth, Grizzell and Essick, of Murphysboro; Dr. Horstman, of Vergennes; Drs. Etherton and Mitchell, of Carbondale. Dr. L. R. Wayman, of Murphysboro, was a visitor. The committee on public health and legislation reported that one J. A. Davis, whose name had been given at the previous meeting as being guilty of illegally vending medicines, had been prosecuted and fined \$100 and costs. The name of A. J. Phemister, of Carbondale, was given as one vending medicines and the secretary was instructed by the president to request Dr. Egan to institute proceedings against this party.

The applications of Dr. Earnest Neber, of Carbondale, and Dr. L. R. Wayman, of Murphysboro, for membership in the society were presented and referred to the board of censors for consideration, they to report on same at the next meeting.

Dr. C. O. Molz presented a very interesting case. A lad, while playing with a railroad torpedo accidentally discharged it, when a large piece entered the skull a short distance above the left eye, tearing its way into the brain. The case was operated on fifteen hours after the accident by Dr. Molz and the foreign body removed. At no time has the patient lost consciousness and everything points to an early recovery. At present the boy has quite a hernia of the brain just over the eye. The case was highly interesting and drew out a lot of discussion as to the best method of caring for the hernia. Dr. C. G. Grizzell read a very interesting paper on "Typhomalaria." This paper is to be read before the Southern Illinois Medical Society at East St. Louis in November with additional remarks. The discussion was opened by Dr. Roth and participated in by all present. Dr. H. H. Roth presented two very interesting microscopic specimens, viz., bacillus typhosus and plasmodium malariae.

Adjourned.

RAY B. ESSICK, Secretary.

KNOX COUNTY.

The Knox County Medical Society met at Galesburg for the sixteenth semi-annual session on September 16, with the vice-president, Dr. E. E. Davis, in the chair. There were about fifty physicians present for the morning and afternoon sessions. Drs. Fred Ewing and Clyde A. Finley were elected to membership. On the motion made by Dr. B. D. Baird the chair appointed a committee of three to be known as the public policy committee; this committee to keep in touch with our representatives in the state legislature and to work with the legislative committee of the Illinois State Medical Society. The chair appointed on this committee Drs. Baird, Hall and Maley. On the motion of Dr. C. B. Ripley the chair appointed a committee of three to meet the finance and almshouse committee of the Knox County Board of Supervisors, now in session, with a view of establishing a tent colony in the county for the treatment of tuberculosis. The chair appointed Drs. Ripley, Bradley and Cromwell. Papers were read by Judge R. C. Rhee, of the Knox County Court; Dr. C. E. Beecher, of Gilson; Dr. C. A. Finley, of Galesburg; Dr. G. A. Longbrake, of Galesburg, and Mr. Thomas H. Potts, sec-

retary of the N. A. R. D., Chicago. These papers were well received and each was followed by quite a discussion. The meeting closed with a banquet given in the Galesburg business men's clubrooms.

D. J. EVANS, Secretary.

M'LEAN COUNTY.

The following items are culled from the September *Bulletin of the McLean County Medical Society* and from the annual program of the fifty-sixth year of the society, 1909-1910. The first meeting after the summer vacation was held at the Illinois Hotel, September 2. Thirty-five sat down to dinner and there was a total attendance of forty-three, an auspicious beginning for this year's work. Dr. J. L. Wiggins, president of the state society, was to deliver an address on "Medical Organization of the Past and Present," but unfortunately was unable to be present. After routine business, including voting on proposed amendments to the constitution and by-laws, Dr. F. H. Godfrey presented the following resolutions:

WHEREAS, Certain old line life insurance companies have underestimated the importance and value of the work done by their local examiners, and have reduced the fee for such work.

Resolved, That the members of the McLean County Medical Society, recognizing that the examination of every applicant for life insurance should be made with the same care and thoroughness, decline to make an examination for any old line life insurance company for less than five dollars.

Resolved, That this resolution shall take effect and be binding on the members of this society on and after October 1, 1909.

Resolved, That the secretary is to furnish each member with ten printed copies of this resolution, and that each member must notify the companies for which he is local examiner.

Dr. J. B. Taylor filled in the time allotted to the absent speaker, and ably entertained those present by an account of things material and medical on the northwest Pacific coast—a region he recently visited.

The society was organized March 20, 1854. It has furnished four presidents for the state society: Dr. Harrison Noble; Dr. A. H. Luce, 1864; Dr. Thos. F. Worrell, 1874, and Dr. John L. White.

The annual program from October, 1909, to June, 1910, follows: "The De-monor of the Obstetrician in the Presence of the Patient," Dr. W. A. Balcke; "Our Present Knowledge of the Efficacy of Drugs," Dr. Elmer Horine; "Symposium on the Eye and Ear: The More Prevalent Eye and Ear Diseases," Dr. Watson W. Gailey; "External Operations Connected with the Eye," Dr. J. B. Taylor; "The Treatment of Compound Fractures," Dr. J. K. P. Hawks; "The Value of the Laboratory to the Physician for Diagnostic Purposes," Prof. S. G. Winter, Illinois Wesleyan University; "The Relation of the Medical Profession to the Non-medical 'Practitioner,'" Dr. A. L. Fox; "Surgery of the Hand," Dr. W. H. Gardner; "Alcoholophilia," Dr. Fred Parkhurst; "Review of Medical and Surgical Progress for the Year," Drs. J. H. Fenelon and R. A. Noble.

MADISON COUNTY.

The regular session of this society was held at the Y. M. C. A. rooms, at Edwardsville on Sept. 3, 1909, with Dr. S. T. Robinson in the chair. This meeting was devoted entirely to the business interests of the members, Dr. R. S. Barnsback, of Edwardsville, introducing the subject by a well prepared article, "Is the Average Doctor a Good Business Man?" The paper produced a unanimous discussion, ably led by Dr. G. Taphorn, Alton; Dr. Leonard Schreifels, of Granite City, and Dr. J. M. Threadgill, of New Douglas. A committee to revise the fee bill was appointed by the chair, consisting of the following members: Drs. Schreifels, Threadgill, Everett, Ferguson, and Burroughs, with Dr. J. M. Pfeifferberger, chairman. The following members were present: Drs. Ihne,

Foulds, T. P. Yerkes, Cook, Taphorn, Pfeifferberger, Ferguson, Barnsback, Schreifels, Threadgill, Hirsch, Hastings, Sutter, Robinson, Burroughs, Pogue and E. W. Fiegenbaum. Our meetings are growing in interest and we expect a large and enthusiastic attendance at our annual meeting in Alton on the first Friday in December.

E. W. FIEGENBAUM, Secretary.

MORGAN COUNTY.

The Morgan County Medical Society met at the Public Library, Jacksonville, Sept. 9, 1909, with the president, Dr. Charles E. Cole, in the chair. The meeting was open to the general public and to the dairymen in particular, to hear an address by Mr. R. R. Brand, of the University of Illinois, on "The Dairyman's Cares and Profits in Clean Milk Production." The speaker reviewed the various precautions necessary before delivery of bacterially clean milk to the consumer can be made. He also laid especial emphasis on the educational campaign that must precede enactment of legislation compelling cleaner milk production. A number of the dairymen and physicians present took part in the spirited discussion of Mr. Brand's paper. The public was well represented and ground was gained toward a better milk supply for Jacksonville. Dr. Walter L. Treadway, of Concord, was proposed for membership in the society.

GEORGE STACY, M.D., Secretary.

NORTH CENTRAL ILLINOIS MEDICAL ASSOCIATION.

The thirty-fifth annual meeting of the North Central Illinois Medical Association was called to order at 11:30 a. m. at Princeton, Ill., by the president, Dr. E. S. Murphy, of Dixon. Members present: Drs. E. S. Murphy, Wm. O. Ensign, Burke, G. A. Dicus, O. T. Flint, Kaul, Griswold, White, Scott, A. E. Owens, Cromwell, Coveney, Robinson, Leage, Priestman, Kemp, Guthrie, Peterson, Keefer and Harms. The applications of Drs. Edward Gorton Cromwell, of Henry; William Carter Griswold, of Princeton, and John L. Priestman, of Neponset, were read and referred to the Board of Censors. There being no member of the board present, the president named Drs. Robinson, Ensign and Kemp to act. The treasurer's report was then read and referred to the Board of Censors for auditing. The Board of Censors reported favorably upon the applications of Drs. E. C. Cromwell, W. C. Griswold and J. L. Priestman for membership. It was moved and carried that the report be accepted and the secretary be instructed to cast the ballot of the association for the three applicants. The necrological reports were the next thing in order, there being four for the year. Dr. C. D. Chalfant, of Streator, had prepared the following report with resolutions upon the death of Dr. Joseph Dicus, which was read by Dr. Wm. O. Ensign and adopted as read:

LIFE OF DR. J. F. DICUS.

After an illness of one week following an operation for appendicitis, Dr. Joseph F. Dicus was called from the activities of life on November 1, 1908. He was laid to rest in Long Point cemetery, followed by a large funeral cortege by special train from Streator. The funeral service was in charge of the Masonic fraternity. The physicians of Streator and adjacent towns attended the funeral in a body.

Dr. Dicus was born in Moscow, Coshocton county, Ohio, Sept. 10, 1852, and had therefore just passed his fifty-sixth birthday. When 12 years old he emigrated with the other members of his family, in a covered wagon, to a farm near Ancona, Livingston county, Ill., where he grew to manhood under the most rigid environment which comes to the pioneer boy who seeks a higher education. As a young man he taught school, and in this way secured the money to attend college. He studied medicine in the office of Dr. Wood, of Streator, and attended Rush Medical College. By economy and his own efforts he worked his way through the medical college and graduated in the class of 1880.

Dr. Dicus was married in 1882 to Miss Maggie Grimes, and to this union have been born one daughter and three sons. For ten years Mrs. Dicus has been a confirmed invalid, and for the past five years, being a victim of rheumatoid arthritis, has required the care of a day and night nurse. Through all these years the faithful husband was ever at her beside, and no word of complaint ever fell from his lips, his smile never failing to hide the sorrow and trouble which were his. I think it can be truthfully said that no member of the medical profession in Streator was more interested in society work and gave more of his time or attended medical society meetings as frequently as Dr. J. F. Dicus.

He was a member of the Streator Medical Club, La Salle County, North Central Illinois and American Medical Associations, and attended their meetings most regularly. He was a member of the Good Will Church, Modern Woodmen and Masonic fraternity. Dr. Dicus' high ideals of medical ethics, which he followed in his social relations with other physicians, made him many loyal friends. His large hearted charity in the service of the poor was very great and his strenuous life of tireless work probably weakened his otherwise strong constitution and cut short his earthly career. By a peculiar fatality, four members of the medical profession of Streator, three of whom were in the prime of usefulness and the strength of a large experience, have been called in the past two years. Dr. Dicus himself made the necrological report on the death of Dr. B. L. Bonar at the last meeting of this society one year ago. The mortality list above referred to includes the names of Dr. B. L. Bonar, Dr. W. L. Smith, Dr. Thomas Crosswell and Dr. J. F. Dicus.

The writer could not close this report without speaking of the many acts of kindness extended him by Dr. Dicus during the past two years of continued illness, by the many wayside calls when busy with other duties. It has been his pleasure to know but few men in the ranks of the medical profession more ready to give assistance when sickness came to a brother physician or his family. Dr. Dicus was strong in the elements of self-reliance, industry, sympathy and charity, and his passing will be regretted most by those who knew him best.

RESOLUTIONS ON THE DEATH OF DR. JOSEPH F. DICUS.

WHEREAS, The North Central Illinois Medical Society would record its appreciation of the life and labors of Dr. Joseph F. Dicus, one of its oldest members and ex-president of the society, who was so suddenly summoned to his reward on November 1 of this year; therefore be it

Resolved, That in paying this tribute of respect to his memory we wish to give expression to the loss sustained by this society and the high esteem of his brother physicians; therefore, be it

Resolved, That in the passing of Dr. Joseph F. Dicus, an honored member of this association has been taken and the medical profession has lost an earnest and conscientious physician; therefore, be it

Resolved, That we extend our sympathy to the members of his family, and a copy of these resolutions be placed on the minutes of this society and published in the ILLINOIS MEDICAL JOURNAL and Streator papers and a copy sent to the family of the deceased.

Moved we adjourned to meet at 1:30 p. m.

Afternoon session, Dec. 1, 1908, called to order, with twenty-two members present. Dr. Kaiser then read the following necrological report upon the death of Dr. E. L. Watts, of Triumph, together with resolutions, which were adopted as read:

DR. E. L. WATTS.

Dr. Edward Lilly Watts was born May 9, 1866, near Washingtonville, Montour county, Pennsylvania. He graduated from Valparaiso University in 1889 and entered the Kentucky School of Medicine, where he graduated with high honors, June 15, 1891, and on June 24 was married to Miss Mabelle Jacoby, of Paw Paw, Ill. In October following he came with his bride to Triumph, Ill., and entered in the practice of his profession. He was a young physician with all the handicaps of youth in that calling, but soon won confidence and built up a large practice, larger in recent years than his strength was equal to. In this

practice he has endeared himself to hundreds as only a successful and kind hearted physician can. His daily care has been to meet the call of human need, no matter from whom it came and regardless of the question of remuneration. He was a member of the Waltham Presbyterian Church and for a number of years was an elder of the same. He was also a member of Waltham Masonic Lodge and took such interest in its teaching that at the time of his death he was a 32nd degree Mason. He was also a member of the leading medical societies of this state. He was buried from his late home at Triumph, Ill., Sunday, November 11, 1908. Honorary pallbearers were Dr. Edwards, of Mendota; Dr. Stette, of Paw Paw; Dr. Goble and Dr. Wiley, of Earlville; Dr. Burk, of La Salle, and Dr. Pettit, of Ottawa.

RESOLUTIONS ON THE DEATH OF DR. E. L. WATTS, OF TRIUMPH.

WHEREAS, It has pleased the Great Ruler of the Universe to remove by death our beloved brother, Edward L. Watts, and knowing that one who has been so useful to his fellow man, both in his private and medical life, and who was cut down so suddenly by Him who death all things well; therefore, be it

Resolved, That through the death of brother Edward L. Watts, the medical profession has sustained a loss of one who was ever ready to extend a helping hand to the sick and to the profession, and his family has lost a devoted husband and a kind and loving father.

Resolved, That we extend to his family our sincerest sympathy in this their hour of bereavement, and

Resolved, That a record of his death be spread upon the minutes of this meeting and that a copy of these resolutions be sent to his family.

J. M. KAISER, M.D.,

F. C. ROBINSON, M.D.

Dr. Wm. O. Ensign read the following neecrological report which he prepared upon the life of Dr. Thomas Crosswell, of Streator, together with the resolutions which were adopted as read:

DR. THOMAS CROSWELL, OF STREATOR.

To have been first informed at so late a date as Thursday evening last that the writer's name was on the program of this meeting for an obituary report of the late Dr. Crosswell, of Streator, could but have given to that individual an unwelcome surprise, if not a distinct shock, since he had long before assured the secretary that he had but little knowledge of the Doctor's personal history, and had had naught but a few recent and brief, though very pleasant, years of acquaintance with him. Neither had he ever resided in the same community nor possessed any extended information or means of securing such concerning the first four score and ten years of the deceased member's active and useful life. To base even a brief yet appropriate biographical sketch of one, who had completed a period of vital existence and activity nearly equaling three generations of human life, upon so limited an amount of individual knowledge as was in hand, seemed to be but presumptuousness, and were it not for the strong probability that other and more appropriate notice of so worthy a character as Dr. Crosswell would otherwise fail of being placed on record, the writer would not now undertake to present the subject of his own assignment on this occasion.

To neglect to promptly recognize the loss by death of so worthy a man, venerable a member of our profession and association would constitute a regrettable omission of respect and duty; likewise a breach of fraternal obligations we owe to each and every member of a like creditable history and an equally commendable spirit and character. Such neglect would at the same time have deprived this association and its membership, who survive him, of a worthy opportunity to reflect an honor not only upon themselves and their organization, but as well the profession to which they belonged.

Thomas Crosswell was born at Mercer, Somerset County, Maine, on June 22, 1814, and died at Streator, Ill., October 5, 1908, at the ripe old age of 94 years. Unfortunately, for the purpose of a more elaborate sketch, we possess at hand no account of his boyhood or early years of maturity. From his New England

parentage and rugged locality and early date of his birth, it is but fair to assume that his formative years were spent among surroundings and scenes likely to give firmness of conviction to his character, and, although not of large frame or mould of stature, nevertheless with physical status of vigorous bodily health and mental stamina with proficient capabilities of effort and endurance that might be said to have well nigh reached perfection in a single individual; the correctness of which assumption has long been well affirmed in the marvelous vigor and persistent vitality he had continued to maintain to the very end of life.

We first notice him as a medical student of Bowdoin College at Brunswick in his native state, which school he entered the year following the retirement of Prof. Henry Wadsworth Longfellow from the faculty of that institution, and from which he graduated in September, 1838, at the age of 24 years. Soon after graduation, he was united in marriage to Miss Henrietta Owens, of Brunswick, Me., where he had also entered upon the practice of his chosen profession, almost under the shadow, as it were, of his alma mater and where he subsequently so continued for sixteen years. Two children were born to such union, one of whom only, Mr. J. T. Crowell, of Pontiac, Ill., now survives his parents.

Mrs. Crowell some years later having been removed by death, a year after her decease the Doctor was again united in marriage, this time to Miss Martha D. Norton, of Farmington, also in Maine.

About 1854 or 1855 he left his native state and removed with his family to Illinois; first locating at Watseka for a year or more, when, during the late summer of 1856, he removed to Pontiac, where he subsequently continued the practice of his profession, as well as conducted a drug store, for about twelve years. He removed to Streator in 1868, since which time, and until his retirement in 1877, he had given practically his entire time to the drug trade in that city. Although never further an active practitioner of medicine, nevertheless he had not relaxed his old-time interest in his early profession or its welfare and progress.

He was again sadly bereaved by the loss by death in 1906 of his second wife, at which time he had himself reached the advanced age of ninety-two years. To this latter union there had been born six children, three only surviving his decease, viz., Mrs. Henrietta E. Wells, of Streator; Mrs. Susan T. Moore, of Los Angeles, Cal., and Mrs. Fannie M. Elder, of Watseka, Ill. A son, Clarence, of the second union, had succeeded him in the drug trade in Streator in 1877, but had passed away some years prior to the death of the father. Following the decease of his last wife he took up his abode at the home of his daughter, Mrs. Wells, of Streator, in which city he spent in all about forty years of his life and where, after several months of illness, he at last passed away at 2:45 a. m. on the date heretofore mentioned.

In the later years of his entire retirement from business responsibilities his mind seemed to revert more and more to his earlier profession. He finally became a constant attendant upon the meetings of this association and likewise of the medical society of his own county. It was at the meeting of this organization in 1905 that, at the instigation of the writer, this grand old man and venerable physician was made an honorary member thereof, a compliment ever heartily appreciated by its recipient, as was manifested on many more than a single subsequent occasion.

His physical and mental vitality was a continued surprise to his intimate friends and associates and a source of wonder to those of younger generations in his own profession who best knew him. Scarcely more than a year or two since he made an extended trip to the Pacific Coast, where a daughter resides, with unalloyed pleasure to himself and with no detriment to his physical energies. A year since he was in attendance, as usual, at the last annual meeting of this association at Sterling, where he then related some of his professional experiences of long past years, although the weather was somewhat cold and rigorous; nor was he satisfied to seek retirement or rest at the close of the exercises, but insisted on doing so and did participate in the social entertainments that were continued to a far later hour. Dr. Crowell, like our former respected member of

many years' experience, Dr. Boal, of Lacon, who had long been the oldest living graduate of the Medical College of Ohio, had himself for years enjoyed a similar distinction as the oldest living alumnus of the Medical Department of Bowdoin College. But a very brief period only before his demise he had written to his alma mater an extanting reaffirmation of his continued interest in that venerable institution of learning. Says a late issue of the *Bowdoin Orient*, of Brunswick, Me.: "The college librarian recently received an autograph letter from the oldest living graduate of the medical school, Dr. Thomas Croswell, of Streator, Ill., who, at the advanced age of 94, writes entertainingly of his continued interest in this institution. Dr. Croswell began his studies at Bowdoin the year after Professor Longfellow resigned his professorship here." That the Doctor, not unlike most other persons of greatly advanced years, although himself generally in the usual enjoyment of robust health, often realized that he was but calmly awaiting a final summons hence, is significantly in evidence, since in a recent communication accompanying the gift of his photograph to the writer, and which was inscribed as late as April 24 last, a date just before the onset of his final illness, among other things almost prophetically said: "I hope to meet you again before life closes, but I know how uncertain our life is. The wonderful machine which has been given us to dwell in during our mortal pilgrimage must, like all earthly things, grow old, and some portion which is beyond the skill of the physician to repair, give way and soon the whole machine becomes a mass of ruins. My own heart, which has had no vacation for ninety-four years, shows symptoms of failure, so I feel that at any time I may hear the summons:

"Look not mournfully on the past.

It comes not back again. Wisely improve the present, it is thine;

Go forth to meet the future with a wise and manly heart."

So lived, reasoned and acted our venerable and venerated friend and colleague, then (a fact unknown to us all) about entering upon the threshold of his final illness.

But a few days later we missed his kindly presence and greeting at our county medical society meeting. An uncontradicted report announced a recent physical indisposition, which finally proved to be the beginning of his last illness, and for weeks following onward to the end his vital forces gradually and continuously weakened without any permanent recuperation. Sometimes suffering, but generally free from pain, he continued to steadily sink away toward that undiscovered country from whose bourne no traveler returns.

Death, the great leveler of human existence, then entered upon the scene, severing the last thread of physical vitality and of a well preserved mental activity, that had continued in unbroken clearness and ability throughout more than ninety-four years of vigorous life and energy; and then the flickering vital spark had fled and the lamp of his long and useful life had gone out forever.

What an honor to our profession and to those of us who had possessed the opportunity and privilege to have been associated with such venerable, exemplary and useful members as the late Drs. Boal and Croswell. Both were men of similar light physical stature but continued exalted mental activity, of like genial spirit, with minds stored with a fund of practical information, the result of long years of observation and accumulation. It was an incomparable delight to be permitted to enjoy their conversation and to hear their relation of fact and experience of generations long since passed away, bringing vividly back the past in immediate touch with the present, as if actually before the vision, greatly to the instruction and edification of the enraptured auditor. Each was the long time eldest surviving alumnus of his respective alma mater, the former living to the ripe old age of ninety-six and one-half and the latter to ninety-four and one-third years. That Dr. Boal likewise highly enjoyed meeting with his professional colleagues is a well known fact and has affirmation in the following extract from a communication to the writer under date of May 22, 1900, himself at that time about the same age of 94 years: "The (late) meeting of the Illinois State Medical Society (at which he had just been in attendance) was a great success. It has added three years to my long life." As a singular coincidence, it might be

here remarked, that his own death eventually took place but a few days over three years from the date of such declaration.

The writer is pleased to be able to further state that he is likewise in possession of an excellent photograph presented to him by Dr. Boal of himself, also a later autograph letter inscribed under date of February 7, a short time only prior to his demise in 1903. The photographs of these two venerable physicians are herewith submitted for the inspection of those present.

In closing this very incomplete sketch, it might be added that the medical organization which has brought together and for several years borne on its roll of active and interested membership the names of two such ancient and honorable worthies of our profession as Drs. Boal and Crowell, should need no apology for its existence or continuance or be required to affirm its usefulness by other evidence. The legality of their noble lives and the example of their continued interest in their chosen profession may well serve as a bright and shining light to all those who may have come after them. In the closing of each of their extended lives has not indeed the saying found in the Book of Job been aptly fulfilled, viz.:

"Thou shalt come to thy grave in a full age, like as a shock of corn cometh in in his season." (Job, v, 26.)

RESOLUTIONS TO THE MEMORY OF DR. THOMAS CROWELL.

WHEREAS, We have been informed that our late honored, venerable and beloved member of the North Central Illinois Medical Association, Dr. Thomas Crowell, passed to the future life at his home in Streator, Ill., on October 5 last, at the ripe old age of more than four score and ten years; therefore, be it

Resolved, That we who survive him will long cherish fragrant memories of our deceased member and his excellent and amiable traits of character displayed throughout a long and useful existence, as a constant reminder of our cordial and friendly relations with us in this life. That his life's activities, extending over almost a century of continued and unflagging effort of body and mind, have ever been a stimulus of admiration to his colleagues and a source of great incitement to usefulness of spirit and a continued inspiration to us in our daily round of professional and other duties of life; that as members of this association we esteem ourselves not only fortunate in having been permitted to enjoy his acquaintance and friendship in the past, but at the same time we consider the deprivation henceforth of his presence with us as an irreparable misfortune to those of us who remain; and

Resolved, That we would extend our united sympathies to his afflicted relatives and friends, who survive him, in the great loss we have all sustained.

WM. O. ENSIGN, M.D.,
For the Committee.

There being no report from Dr. Ross upon the death of Dr. J. W. W. Whitmire, of Forrest, Dr. Wm. O. Ensign, at the request of the secretary, kindly prepared and placed in the hands of the secretary later on the following:

JOEL WALLACE WHITMIRE, M.D.

Dr. Whitmire was a son of Dr. James Sidney and Siduah Robinson Whitmire, and was born at Metamora, Ill., October 25, 1851. He died at Forrest, Ill., June 1, 1908, at the age of 56 years. He came of a family of three sons and one daughter, all of the sons following in the professional footsteps of the father by, in turn, entering the medical profession. They were as follows: Joel Wallace, the subject of this sketch; Clarence Leonard, who practiced his profession for a time at Sublette, Ill., whence he removed to Waverly, Iowa, where he died quite suddenly, some years since, in the very prime of his usefulness, and Zachariah Lincoln, who, after graduating in medicine, located at Urbana, Ill., where he passed away but a few years later and after a comparatively brief term of professional service.

The daughter, Miss Minnie Whitmire, was many years ago united in marriage to D. D. Fairchild and is now a resident of Forrest, Ill., as is the venerable mother of the deceased, who at eighty is enjoying excellent health for one past four score years of age. The father, Dr. James S. Whitmire, an eminent physician and surgeon of the state, in his day, who had for very many years resided

and practiced his profession at Metamora, died some years since at a ripe old age after a long and successful practice of about fifty-six years. Two uncles and one cousin of our subject were likewise physicians, the entire seven of the name having been graduates of Rush Medical College. For many years one of the uncles, Z. H. Whitmire, also practiced at Metamora. All of the seven have now passed away save one, Dr. Wm. L. Whitmire, the cousin above mentioned, now a practitioner of Sumner, Iowa. The father and the first two named sons were members of the North Central Illinois Medical Association, the father being one of its founders and its first permanent president in 1874. Dr. Joel Wallace Whitmire was an early member, its secretary in 1884, and became a life member in 1900 by reason of twenty-five continuous years of faithful membership therein. J. Wallace Whitmire, as he was best known to many of his acquaintances, passed through the public schools of his native place, attended a military school at Fulton and later Eureka College for two years, when he took up the study of medicine in the office of his father at Metamora. He soon entered Rush Medical College and subsequently graduated therefrom with the class of 1877. He then practiced at Metamora for a season, but finally removed to Forrest, Ill., in 1886, since which time he had remained a resident of that place.

On September 13, 1877, in the fall after his graduation, he was united in marriage to Miss Laura Northcotte, of Christian county. To this union were born two children, viz., a son, J. Sidney, and a daughter, Merry Jane.

Having contracted pneumonia on January last the Doctor's affection was subsequently followed by a continued debility from which a complication of diseases resulted, which, in time, involved the heart, stomach and liver. Against this unfavorable condition of health he bravely struggled, in an effort to overcome his physical infirmities, for about five months, but the contest proved to be an unequal one and he was at last compelled to succumb to the inevitable result.

Dr. Whitmire was a man always interested in educational and other public affairs and at times had served in positions of usefulness to the community in which he lived and in capacities for promoting the enterprises and welfare of those about him, such as president of the school board, or as a member of the board of trustees of the village or city in which he resided. He was a Mason, a Knight of Pythias, an Odd Fellow and a Modern Woodman and took great interest in such organizations, being finally laid to rest under the auspices and with the ceremonies of the first named order, amidst almost a bower of beautiful and fragrant flowers.

It has been testified of him that "he was a man of fine intellectual attainments and broad liberal views, that as such he had filled a large place in the community as a citizen as well as a practicing physician." He was a long time member of the County Board of U. S. Pension Examiners and was also a member of the county, district and state medical societies, as well as a local surgeon for the T. P. & W. and Wabash R. R. companies. While not a frequent attendant at its meetings, he was an interested and continuous supporter of this association, and after a quarter of a century of such service he had earned a life membership therein. His death, although for some time anticipated, when it finally came, was a distinct shock to his home community and a profound loss to his friends and those who knew him most intimately. "A good son and brother, an affectionate husband and father and an excellent and beloved citizen has passed from the community" in which he had so long lived and labored. "His genial and kindly personality will long be missed" from among his people and by his collaborators of the medical profession, with whom he had so many years been in active and cordial association and good fellowship.

WM. O. ENSIGN, M.D.,
Special Committee.

RESOLUTIONS OF RESPECT TO THE MEMORY OF JOEL WALLACE WHITMIRE, M.D.

WHEREAS, Our long time and highly respected fellow member, Dr. J. Wallace Whitmire, of Forrest, Ill., passed from this life at his home in that city on June 1 last; therefore, be it

Resolved, That we, the members of the North Central Illinois Medical Association, who survive him, feel that in his death we have lost a faithful member and a genial and highly respected brother of our profession. That we would preserve his memory as of one who patiently labored and faithfully discharged his duties without ostentation or as if seeking only fulsome and self-desired praise for his efforts; therefore, be it

Resolved, That as a member of his profession he served his community long and well and wrought in a manner to command the respect and esteem of all those for whom he labored, as well as of the people among whom he dwelt; and

Resolved, That the members of this association will ever cherish recollections of his many excellent qualifications of mind and heart as a fragrant memory of his worthy character while in their midst, and would sincerely attest their deepest sympathy with the stricken relatives and friends in the loss we have all sustained.

The regular program was taken up as follows:

"Newer Methods in the Treatment of Sciatica," D'Orsay Hecht, M.D., Chicago.

He called attention to the fact of two great neuralgias—trifacial and sciatic. In diagnosing must exclude tabes dorsalis, diabetes, arthritic hip, etc. Then can use the injection method of normal salt solutions, injecting 30 to 120 cubic centimeters, perineural; can repeat, using 15 cubic centimeters. Solution should be body temperature; uses needle 12 centimeters long. Relief is very marked. Dr. Hecht has injected 22 cases. Discussion by Dr. John Ridlon and Dr. J. F. Perey, the former calling attention to necessity of careful differential diagnosis of acute chronic gonorrheal rheumatism, disease in lumbar spine, and Pott's disease especially.

Dr. Hecht in closing discussion called attention to danger of injecting alcohol into the nerve, as degenerative processes would ensue; grave disabilities have occurred in cases in France. The depth required to go varies from 5 centimeters to 10 centimeters; average, 7 to 7½ centimeters.

Dr. C. A. E. Lesage of Dixon read an interesting paper upon "The Necessity of Early and Frequent Examinations of the Ears of Children in Acute Infections," which was discussed by Drs. Guthrie and Griswold with Lesage to close.

Dr. P. M. Burke, of La Salle, then read a paper on "Appendicitis." He thinks meat eaters are more prone to appendicitis. United States leads the world in use of meat and also in appendicitis. Very rapid pulse indicative of serious trouble. A kinky appendix is often unattended with rigidity. Two cardinal signs are general pain which after 12 or 15 hours localizes over McBurney's point and rigidity of rectus muscle. While all are operative cases, there are two ways of treating them, and Dr. Burke prefers the rest treatment, using morphin for pain, daily rectal injections and nothing by mouth until two days prior to operation, when milk or beef tea may be used. Discussion by E. B. Owens, J. F. Perey (who does not approve of the morphin, but wraps in hot towels and if the patient is not relieved an enema is given of one ounce of whiskey in normal salt solution), Cressman, L. D. Howe, Scott of Princeton and Bayard Holmes, who says no medicine, no morphin, and will operate when diagnosed or have nothing to do with the case. Dr. Burke closed the discussion.

Dr. E. P. Cook then read a paper on the following subject: "Local Anesthesia for Major Surgical Operations." He uses two-tenths of one per cent of cocaine in normal salt solution at body temperature. A preliminary injection of one-eighth of a grain of morphin one-half to one hour before the operation. Discussion by Drs. Griswold, E. S. Murphy and J. F. Perey. Dr. Cook closed the discussion.

An intermission of five minutes was declared in order that those present might sign the register, pay their dues and select a nominating committee. Being called to order and the roll of counties called, the following were named as a nominating committee: Bureau, M. J. Coveney; De Kalb, Keizer; La Salle, Ensign; Lee, Lesage; Marshall, Kemp; Grundy, Kendall, Livingston, Putnam, Whiteside and Woodford not represented.

Dr. Bayard Holmes then read the following paper on

SOME SIDELIGHTS ON CHOLECYSTITIS.

BAYARD HOLMES, M.D., CHICAGO.

I know of no more interesting pathological problem than that of the infected retention cyst. It matters not whether this cyst be in a secreting gland of the skin or in one of the appendages of the respiratory or of the intestinal tract. The same elements prevail, and the same logic finds a place. The formula of indications is the same. The value of the several pathological increments alone are different. In our attention to the local effect of infection we are too often forgetful of the constitutional effects. An infected appendix, for example, produces other symptoms than perityphlitis and belly-ache. Cholecystitis is not synonymous with gall stones, and gall stones may exist without cholecystitis. All the local symptoms of gall stones, and of cholecystitis, even the much-looked-for jaundice, may exist, and the operator find a simple appendicitis or a duodenal ulcer.

Cholecystitis is a much more common disease than either surgeons or practitioners are willing to admit. Its effects are far more often toxemic and constitutional than local and inflammatory. The diagnosis in the latter case is relatively easy and in the former instance proportionately difficult.

In this broad conception of cholecystitis diagnosis becomes difficult and time-consuming. A single observation, a single visit or office consultation rarely suffices to furnish a basis for diagnosis. In typical gall stone attacks the diagnosis is brought with the patient. To determine astronomically the time requires but a single observation upon the moon and an adjoining fixed star. But the place and identity of a comet requires numerous equally exact observations and measurement, and protracted computation.

The symptoms of gall stones or of acute cholecystitis have been so thoroughly presented that the disease in this form is almost unmistakable. The chronic disease, however, is manifested only in remote and almost irrelevant symptoms. In studying the condition of this viscus, after years of disease, it is found to have undergone changes similar to those of the appendix in appendicitis, or the mucosa in the disease of other mucous cavities. The outlet is partially but not completely obstructed. All the mucous glands of the gall bladder are greatly hypertrophied and their secretion is enormously increased. The submucous tissue, containing the lymph apparatus, is greatly exaggerated, and the surrounding and nourishing blood vessels are hypertrophied. The muscular elements which are normally almost microscopic are greatly thickened and infiltrated with an increasing amount of connective tissue and vascular elements. The serosa alone remains unchanged, or only vascularized during the course of acute exacerbations. In the neighborhood of the union of the cystic with the common duct, a packet of lymph glands, scarcely distinguishable in the healthy, are excessively enlarged, sometimes a half an inch in diameter. The adjacent liver substance is noticeably pulled out into a tongue-like projection, presumably by the repeated distensions of the gall bladder, or by pressure upon the central blood vessels and ducts, to which this segment is tributary. This is known as Reidel's lobe. The hepatic elements of this lobe are often cirrhotic. If the blood vessel which supplies the gall bladder is examined microscopically, or even any of its branches, it is found in a state of advancing arterial-sclerosis.

The presence of stone in such a gall bladder is only of passing interest. It is an incident similar to the appearance of ulcers of the mucosa, extravasations into the sub-mucosa and muscularis or complete defects of all the coats of the gall bladder, and the formation of an extra-cystic lake of the contents of the gall bladder. They are like the perforations which occur into the colon, the duodenum, or the stomach. They are no more essential to the disease than adhesions to the duodenum, the stomach, or the gall bladder.

Our ancestors paid the greatest attention to the progress of gall bladder diseases. They reckoned that the stones showed a natural tendency to form in this viscus and that they ordinarily passed with more or less distress to the cystic duct through the common duct into the duodenum and at last out into

forgetfulness. They considered the possibility and probability of a perforation of the gall bladder through the liver and diaphragm into the lungs and outward through a bronchial tube. They watched the attachment of the gall bladder to the abdominal wall and the perforation and discharge of the stone through this area of protective adhesions into the round ligaments and out through the umbilicus, or into the sheath of the rectus and the discharge of the stones in the groin, or even at the knee. Such studies showed the grave import of this disease. We now know that long before any of these tragedies eventuate the toxic elements gendored in the gall bladder have poisoned the whole circulatory, nervous and glandular apparatus, and rendered the painless patient anything but sound and well.

While the disease is still confined to the gall bladder and while its location is wholly unrecognized by the patient, the toxicity of the blood has vitiated the nutrition of the central vascular apparatus, a central endarteritis has set in, even in middle-aged or young patients, and patches of atheroma are found in all the larger blood vessels, as far as the iliac and carotid. The heart muscle has undergone a degenerative process, which terminates in the so-called brown atrophy of the heart. The presence of bile pigment which passes through the unhealthy mucosa of the gall bladder and the pigment liberated by the presence of the toxins in the blood give the skin a blotched and dusky hue, which in older people often suggests carcinoma. The stream of toxins from the gall bladder which is naturally poured into the same lymph currents as those of the pancreas modifies the production of lipase and materially influences the digestion and nutrition. The patient either grows fat with a stimulated pancreas under an increased activity of the lipase, or grows thin by contrary process.

Where the symptoms of a toxemia prevail, in a vitiated nutrition, a tachycardia or a fluctuating high blood pressure, with the history of the ordinary precedents of gall bladder disease and the finding of a Reidel's lobe, there is but one step further to a diagnosis, and that is an exploratory incision. Weeks and even months may be necessary to make the diagnosis.

When it is determined that a cholecystitis exists the fact that many cases recover under improved diet and surroundings must not be forgotten. The reputation of springs and cures is not based upon bluff or credulity alone. The outdoor life, the large quantities of saline waters, the purgation, the moderate exercise and the monotonous diet do relieve and occasionally cure. It is very doubtful whether stones ever pass or not. Only once in all my experience have I felt absolutely certain that a gall stone passed through the intestinal tract by way of the common duct and duodenum. The stones may remain and the gall bladder may be well. The interior of the gall bladder must be thought of as analogous to the skin of the adolescent's face when covered with acne. It gets well sometimes, and sometimes almost without a scar. So it is with the gall bladder. I am accustomed to recommend outdoor sleeping and living, a vegetarian diet, frequent doses of the phosphate of soda, vigorous hydrotherapy, and moderate exercise. Under this treatment a large number of the earlier, or as I am accustomed to say, suspected cases, recover. Even after violent colics and in one case after an empyema of the gall bladder, this method furnished relief and secured health for eight years. At the end of that time the stone was forced by the contracting parchment-like gall bladder against the common duct, and symptoms again arose, which necessitated a cholecystectomy and the removal of the stone. There will still be a large proportion of patients who are not bettered by rational medical treatment. These patients should then be subject to cholecystostomy.

The preparation of the patient for this operation ought to be thorough. The competency of the heart and kidneys, the coagulability of the blood and the psychic condition of the patient should be thoroughly studied. The fact that the heart is rapid and irregular is not a contraindication to a short, direct and curative procedure. If the blood coagulates promptly and there is no tendency to nephritis, ether is a safe anesthetic. It should not, however, be administered recklessly or out of the surgeon's observation, but in the operating room and

after the ordinary antiseptic preparation of the field of operation. I believe that gas is dangerous in these cases, even for three or four minutes, and especially if it has to be administered a second time. Under no circumstances, it seems to me, should chloroform be given where gall bladder disease exists. The pathological conditions are identical with those of delayed chloroform poisoning, and similar to those of acute yellow atrophy of the liver.

In patients that weigh less than 150 pounds a local anesthetic is adequate, providing the relations between the surgeon and the patient can be established upon that plane of confidence necessary for the procedure. In the aged and in a number of much younger patients I have had no difficulty in performing cholecystostomy by the use of Schleich's solution. The skin alone needs thorough infiltration. The incision is painless. There is a painful spot somewhere in the sheath of the rectus muscle. The peritoneum and the gall bladder itself are without sensibility, except when pulled upon. The needle and forceps and even the scissors in opening the gall bladder produce little pain.

The operation should be performed with the patient upon a table slightly elevated at the head, and the pelvis and thorax moderately over-extended on a pillow. The exaggerated over-extension which may be attained only when the patient is fully anesthetized is a far more serious procedure in itself than the cholecystostomy. This is especially the case in the aged.

The incision which seems to me most indicated is about an inch and a half long on the outer border of the rectus, just below the ribs, and represents the longitudinal portion of Bevan's S-shaped incision. An inch and a half is enough and more than that is only necessary in fat people or when other maneuvers are necessary. The advantages of the short incision are too obvious to mention. One might, however, speak of the ease of excluding other viscera, the fact that it is unnecessary to close it after the operation is finished. It is unnecessary to keep the patient in bed after the operation, it shortens the time of operating, and it makes the introduction of sponges and the consequent irritation of the viscera unheard of.

I am accustomed to pass the finger into the abdomen, feel the gall bladder, locate its fundus, grasp the fundus on a smooth curved artery forcep, bring it into the wound, put a stitch on either side of the artery forcep through the wall of the gall bladder and into the peritoneum and fascia of the rectus on each side; open the gall bladder between these two stitches, remove the first artery forcep and grasp the upper and lower corners of the wound, evacuate the gall bladder, introduce a tube five or six inches long and as large as the index finger, sew it with a single stitch to the skin on the right-hand side of the wound, cut it short, and cover the whole with a large absorbent dressing. This operation, ordinarily, requires no more than four to ten minutes, when ether is used, but when a local anesthetic is administered it takes ten or fifteen minutes longer.

The care of the patient after the anesthetic and after the operation is very important. He is placed in a semi-recumbent position at once, and as soon as he is conscious he is allowed to wash out his mouth and sit in a rocking chair or sit up in bed, as he prefers. Frequently there is no vomiting at all. When there is vomiting, the washing out of the nose and mouth with salt and water, to which a few drops of vinegar have been added, seems to be helpful. I frequently allow the patient to take a large quantity of water with the express purpose of seeing it expelled shortly with great relief from the nausea. The windows are kept open and the room cold as if the patient were being treated for tuberculosis. On the second day the patient is urged to walk around and generally does. And on the third day he is dressed for company and has the liberty of the hospital. This procedure makes the cure quick and, I believe, diminishes the tendency to pneumonia, phlebitis and other complications of the abdominal section. I have never seen any bad effects come from this method, which is particularly indicated in the aged and in all patients where the heart is weak and the blood currents likely to be too slow.

I operated upon P. A., a vigorous but somewhat dissipated young man of 26, in 1895, for a perityphlitic abscess which extended entirely across the pelvis. Drainage was made on both sides, the appendix removed, and the patient recovered without complication. Two or three years later he complained of stomach trouble, palpitation of the heart, and great disturbance in the upper abdomen. These occurred with increasing frequency and after two or three years by violent attacks. I examined him a number of times, and found an area of anesthesia in the right scapula line, over the ninth and tenth ribs. A distinct Reidel's lobe, an extremely irregular heart, a tinged sclera and skin, and a marked hyperacidity of the stomach contents. In one of the attacks in 1902 there was a jaundice which lasted five or six hours. After this, the most prominent symptom was a distress about the heart, with a rapid pulse and a choking sensation, which extended into the right shoulder. All medical treatment was fruitless. In December, 1905, I opened the gall bladder, as described above, found it more than a quarter of an inch thick, and evacuated several hundred small gall stones. The patient left the hospital three days after the operation and attended an anniversary dinner, of which he partook freely. His tachycardia and the irregularity of the pulse had practically disappeared, and the large meal brought no distress. He has since gained thirty-five pounds in weight, and is completely relieved of all his symptoms.

1. I urge upon you the consideration of the thesis that cholecystitis is a much more common and serious disease than gall stones.

2. Cholecystitis is the beginning of all gall stone disease and of most of the other inflammatory processes in the upper abdominal cavity.

3. Cholecystitis when properly treated is curable, either by dietetic and hygienic means, or by operative measures.

4. Cholecystostomy seems to be adequate in most cases, but cholecystectomy must be performed when the gall bladder is gangrenous, or when the duct is completely obstructed.

5. Cholecystectomy should be performed as a secondary operation and several months after the primary cholecystostomy.

The discussion was opened by E. B. Owens, followed by J. F. Perey and Steele, Dr. Holmes closing. He stated that of 21 cases ranging in age from 35 to 82 on which he had operated, one died upon the table and one required a second operation.

Adjourned at 6:05 p. m. to meet at 8:15 p. m.

At 6:30 p. m. the visiting physicians and their ladies met at the Harris restaurant, where a bountiful repast had been provided by the Bureau County Medical Society, which was thoroughly enjoyed by all present.

EVENING SESSION.

At 8 p. m. a public meeting was held in the main auditorium of the Congregational Church. The address of welcome was given by Professor McGill, which was responded to by President E. S. Murphy, who also gave the president's annual address. This was followed by a couple of solos, after which Dr. John Ridlon of Chicago gave the general public address. Subject, "A General Consideration of the Needs of Crippled Children, Their Treatment and the Results to be Expected."

WEDNESDAY MORNING SESSION.

Meeting was called to order at 8:30 by the president and the nominating committee reported as follows: Dr. Priestman had taken the place of Dr. Coveny of Bureau County.

The nominating committee of the North Central Illinois Medical Association met December 1, 1908, after adjournment of the evening session of the society. Dr. Ensign of Rutland was elected chairman and Dr. Priestman of Neponset secretary of the committee. Your committee would recommend the following named be elected as officers of the society for 1909:

* For text of paper see page 409.

Dr. J. F. Percy of Galesburg for president, Dr. F. A. Turner of Sandwich for First Vice-President, Dr. A. E. Owens of Princeton for Second Vice-President, Dr. George A. Diseus of Streator as secretary and treasurer. As board of censors, Dr. J. J. Pearson of Pontiac, Dr. J. M. Kaiser of Somonauk, Dr. J. C. White of Seatonville, Dr. C. A. E. Lesage of Dixon, and Dr. J. I. Knoblauch of Metamora. As committee on necrology and biography: Dr. F. C. Robinson of Wyand, Dr. Frank Anthony of Sterling, Dr. H. M. Ferguson of Morris, Dr. C. H. Kemp and Dr. E. W. Weis of Ottawa.

There being no invitation for place of meeting for next year, that matter was left open by the committee.

Your committee would recommend that the secretary of the society be empowered to make additional appointments to the committee on necrology and biography as occasion may require. The committee recommend that the following resolutions be adopted: Moved and seconded that the report be accepted and that Dr. Ensign cast the ballot for the officers named by the committee, which was done and the officers declared elected. Moved and carried that the secretary be empowered to add to the necrological committee at any time as deemed necessary. The following resolutions prepared by the nominating committee were read and unanimously adopted:

Be It Resolved, That its members extend to the citizens of Princeton our sincere appreciation of the hospitable welcome extended to our association during its annual meeting in this city of Princeton. Be it further

Resolved, That we extend our thanks to the Bureau County Medical Society for the excellent banquet and entertainment which we were privileged to enjoy. And be it further

Resolved, That our gratitude to the officials of the First Congregational Church be expressed in our humble manner for the use of their society's beautiful building during the meeting of our association; and, lastly, that we fully appreciate the efforts of the local committee in making this meeting a complete success.

J. S. PRIESTMAN, Secretary of Committee.

There being no other unfinished business, the regular program was opened by Dr. C. C. Rogers of Chicago, with a paper on "Surgery of the Brain."* Discussion by Drs. E. P. Cook, Lesage and Ensign.

Dr. Robert H. Good then gave an interesting talk on the symptoms and treatment of "Frontal Sinusitis." He exhibited some beautiful specimens and some special instruments which he had made for this operation. Discussion by Drs. Steele and others.

It was moved by Dr. Flint that inasmuch as Drs. Rogers, Good and Ridlon of Chicago had come down and mingled with us and given us three most excellent papers, that we extend to them by rising vote our thanks and that they each be made honorary members of the North Central Illinois Medical Association. Carried, unanimously.

Dr. C. M. Cheadle read a paper on "Conduct of Normal Labor," which proved of great interest.

THE CONDUCT OF NORMAL LABOR.

C. M. CHEADLE, M.D., ASHTON.

The question may arise as to whether it is proper for a body of scientific physicians to consider the subject of normal labor. If the old grandmothers can attend their daughters and grand-daughters in labor and all go well, is it necessary that physicians, who are educated and trained in hospitals and colleges, should devote any part of the program of their meetings to a consideration of how to conduct a case of normal labor? Facts which may be easily obtained seem to indicate that somebody, somewhere, should consider this subject, and consider it seriously. The number of deaths from puerperal causes is appalling. The following table, which is compiled from the records of the state board of health, speaks for itself:

* For text of paper see page 431.

TABLE SHOWING NUMBER OF DEATHS EACH YEAR IN THE STATE OF ILLINOIS FROM PUERPERAL CAUSES, INCLUDING INFECTION, ECLAMPSIA AND HEMORRHAGE AND OTHER CAUSES, FOR THE YEARS 1902 TO 1907, INCLUSIVE, AS REPORTED TO THE STATE BOARD OF HEALTH.

	1902	1903	1904	1905	1906	1907
Infection	352	383	406	380	322	333
Eclampsia	70	156	146	127	135	130
Hemorrhage	51	33	40	52	42	47
Other causes	218	207	187	184	193	214
Totals	691	779	779	743	692	724

You will notice that the statistics offered are not comparative, and are not expressed in percentages, in which form they so often mean practically nothing. But we are up squarely against this fact that in the year 1902 in the State of Illinois 691 women met death from puerperal causes. This number was actually reported and it is doubtful if all cases were reported. In 1903 the number was 779; in 1904, 779; in 1905, 743; in, 1906, 692; in 1907, 724. The total number of deaths for the six years was 4,408, an average of 735 for each year. Of these deaths 2,176 were caused by infection and 764 from eclampsia. Thus there is an average annual death rate from infection for the six years of 363, and from eclampsia of 127.

I reason that the above facts furnish sufficient ground for a consideration of this subject at this time. Surely if all physicians always did their best to prevent the death of their patients no such records as these could accumulate.

My consideration of the subject of normal labor is not offered as a comprehensive discussion of the subject, but I have aimed to emphasize those points which seem to me to conduce most to the production of mortality statistics. From the figures quoted above it is seen that the two leading causes of death are puerperal infection and eclampsia. Of the total 4,408 deaths from all puerperal causes 2,912, or over 66 per cent., resulted from these two causes. Of all puerperal causes of death I consider these two the most readily preventable. Therefore, in my consideration of this subject I shall keep before me the thought of emphasizing the prevention of infection, the prevention of eclampsia depending entirely upon the management of pregnancy rather than labor. It has been said that every time a woman dies of puerperal infection that someone else should be banded. This is not strictly true, but emphasizes the truth that there is almost never a good cause for a woman dying from infection. I know that there are cases for which no one is to blame, but these are the exception.

It is not proper to suppose that all deaths from puerperal causes result from a misconduct of normal labor, yet if the facts were traced down, misconduct of normal labor was a very large factor in the production of the deaths above referred to. Cases of infection arising in cases of normal labor I positively know to be all too frequent. A case of normal labor is often better off in the hands of one of the old grandmothers than in the hands of some physicians. The grandmother waits for Nature to do the work. When the baby comes she cuts and ties the cord and cares for the baby. When the placenta is expelled she removes it and cleanses the patient. The subsequent care does not include all modern aseptic and antiseptic measures, but, as the woman was not infected, she makes a good recovery. Suppose one of several doctors that I know had been called. Of course he must be scientific. He makes repeated digital examinations to determine how the birth progresses. His fingers are faultily cleansed. The external genitals of the mother are not cleansed at all. The birth takes place just about as it would have done had he not been there. After the child is born he is in a hurry to get away. To wait for the placenta is too slow. He introduces his finger to assist in its removal. He tells some of the attendants to wash the patient with a carbolic solution and hasten away. What has he done more than the grandmother would have done? Only one thing, he infected his patient.

The conduct of normal labor is a subject to which I have devoted considerable attention and in the course of ten years in general practice I have developed a technique which I shall give you. It is one which I believe to be practical. It seems to me to be freed, as much as is consistent, from what may be termed hospital formalities. It seems to me that many physicians, realizing that they cannot carry out in general practice the hospital technique as given in the text-books, drop to the other extreme, and do not use enough precautions. I have never tried to carry out all the elaborate technique of the text-books, but have adopted such part of it as I think I can use to advantage. To this I have added some things from my own experience.

I might remark in passing that a lazy doctor makes a poor obstetrician. It is so easy to omit important details. I verily believe that one of the reasons why so many women die from puerperal causes is because too many physicians are really too lazy to do the things that should be done. Almost any physician will admit that it is proper to have sterilized hands and a sterile vulvar region and sterile obstetric pads, etc., but these things cost work and time. The careful physician must stay with his patient longer than the careless one does. Superstition and ignorance must often be overcome by diligence and patience. The physician has a large duty to perform in instructing his patients in ways of safety. Eternal vigilance and diligence are the price of a clean record as an obstetrician.

The technique I use is somewhat as follows: In the first place, I have my patient come to confinement in the best possible condition. The general care of pregnancy has a very important bearing upon the puerperal period. The care of pregnancy is a subject upon which I would very much desire to touch, but one which does not properly come within the scope of my paper. I aim always to instruct my patients to call me early. If the patient lives a long distance in the country I tell her to call me when the first symptoms of labor appear.

Preliminary Preparations.—After I arrive at the bedside I try to estimate about what is the stage of labor, if there is time to make proper preparations. You all know that we are called sometimes to places where no preparation worthy the name has been made. One has simply to go ahead and make such preparation as he can. If he has time and inclination he can provide many means of safety for his patient, even under the most unfavorable circumstances. An abundance of boiling water is generally my first thought. Then clean basins, soap, wash cloths, etc. If a trained nurse is present of course the preliminaries may be safely left to her. I try to have three basins. All are carefully washed with soap and water and well scalded with boiling water. I then make a 1 to 1,000 bichlorid solution with boiling water and drop a clean wash cloth into it. I also pour a quart of boiling water over another wash cloth in another basin. A clean soap dish and fresh bar of soap are obtained. The third basin is to be used for preliminary scrubbing of hands, the second for final soap and water scrubbing and the bichlorid for final use before all internal examinations.

While water is being heated and before the cleansing of the basins, etc., I generally make an abdominal examination. It is my practice in all cases, where I can, to make a thorough physical examination of the patient a month before confinement. By this means I know the position of the child, and the examination at confinement time will not need to be as thorough as otherwise. If the preliminary examination has been made a vaginal examination at the beginning of labor is seldom necessary. Sometimes it is not anyway, but I have never become sufficiently expert in abdominal palpation as to feel sure of my ground in all cases. So I sometimes make an internal examination to assure myself of correct diagnosis of position and presentation.

Preparation of the Patient.—Where time and circumstances will permit, I always have the external genitals and adjacent parts of the mother subjected to a thorough soap and water bath, followed by a bichlorid bath. A compress wrung from the bichlorid solution is then placed over the external genitals. If a trained nurse is present I turn over this work to her. If not I do it myself. Of course, there should be someone else to do such work but it will not do to trust it to in-

experienced hands. It is often the case that a physician has not done his duty until he has done *more* than his duty.

Either before or after the cleansing of the patient she should be clad in night dress only. Her bed should be prepared in such a way as to avoid soiling of the mattress. A yard and a half of new table oilcloth may be placed over the mattress, a sheet over this, and another sheet folded into eighths so placed as to be under the patient's hips. A pad made of absorbent cotton may take the place of the folded sheet.

I have never devoted any attention to sterilizing of sheets and gowns for confinement cases. I should have no objection to such sterilizing but sterile sheets will remain sterile scarcely longer than it takes to get them into place. It is not necessary that a patient should be infected from unsterilized sheets. The one absolutely necessary consideration is that no infection shall be carried into the vagina by means of an unclean finger. The rectum, with its swarms of infectious germs, is only an inch away from the outlet of the birth canal. It can not be removed. It is very much more important that the patient should be guarded against infection from this source than from non-sterile sheets. The wet bichlorid compress is the best means I know of to keep the parts about the entrance of the birth canal in as nearly sterile condition as may be. If all the folds of the vulva and adjacent parts are carefully cleansed with soap and water and then bathed with the bichlorid solution the wet antiseptic compress, in the course of half an hour, will render the parts practically sterile.

Course of the First Stage.—During the first stage of labor the patient may be allowed general liberty. She should not be in bed except for special reasons. She may be clad in a wrapper or night dress and have a shawl or blanket thrown around her if needed. She should also have stockings and slippers as long as she is up and around. The rectum should be flushed with salt solution and the bladder should be emptied frequently. She should be given a general bath as soon as labor has certainly begun. The general surroundings should be made as pleasant as possible for her and obnoxious visitors should be disposed of in some way. Cheerful conversation may help to divert her attention from herself. Drink may be taken freely but no solid food should be taken.

Conduct of the Second Stage.—During this stage the patient may, under certain circumstances, be up some of the time, but as a rule she should be in bed. The bladder should be emptied often. The progress of the fetal head may be determined with reasonable accuracy without internal examination. Before descent into the pelvis it may be felt just above the pubes. By the time it has passed so low that it can no longer be felt above, it may be felt during the pains just below the pubic bone by pressing firmly on the soft parts. A little later ocular examination can quite accurately determine the progress. Physicians who have been in the habit of depending on the finger in the vagina to tell them of the progress of labor in the second stage will be surprised if they give a little attention to external methods, at how much may be accurately learned without digital examination.

Digital Examinations.—Internal examinations should be made as infrequently as possible. If the vulvar region has been soaked well with bichlorid solution and the hand is properly prepared, I do not consider that a simple examination adds greatly to the danger of infection. In some cases, after I have made an examination at the eighth month, I do not make an internal examination during the course of labor, but I aim always to have my patient in such condition that I can make an examination at any time without much danger of infecting her. I know of no rule regarding the frequency of examinations or of conditions under which internal examination seems to be demanded. These matters must be left to the judgment of the attendant. In cases of prolonged labor I sometimes make several examinations. Slight correction of position of the fetal head is sometimes needed, calling for the introduction of the fingers into the birth canal. There are many other conditions under which internal examination may be necessary. The only rule that I know of is that the examination should not be made unless there is a well defined reason for so doing.

If the membranes do not rupture at the proper time it may become necessary to rupture them. It is sometimes hard to determine just when this should be done. I would generally rather rupture them a little late than too soon. The distended sac should come well down to the perineum before it is ruptured. If the finger fails to cause rupture an instrument of some kind may be needed.

When the head begins to distend the perineum, close watch must be kept to avoid a sudden descent with rupture of the soft parts. During this part of the second stage the vulva should be in full view of the obstetrician. In slow cases I often place a bichlorid compress over the vulva and let my hand rest upon the compress. In this way sudden rapid descent will instantly be recognized. As the soft parts become more and more distended precautions must be taken to prevent lacerations. Many suggestions have been offered for preventing lacerations, but most of them are of very little value. I know of but three which seem of sufficient importance to mention. They are to prevent:

1. *Too Rapid Descent of the Fetal Head.*—This may generally be easily controlled by resisting the downward movement during the pains, and by administration of chloroform. The latter also assists by promoting muscular relaxation.

2. *Too Early Extension of the Head.*—The head should be kept well flexed upon the chest until the occiput is past the pubic arch. It should then be extended and the nape of the neck pressed firmly upward against the pubic bone. Should the head become extended before the occiput passes the pubic arch the diameter of the part included in the grasp of the vulvar girdle is increased and the danger of laceration thereby increased.

3. *Episiotomy.*—This is an operation which I am sure should more frequently be done. Perineal lacerations are so common, and so many women are suffering from the effects of them, that it seems time that more attention were given to taking a woman through confinement safely, not only from the standpoint of her life, but also from the standpoint of her health. The operation is a simple one and is safe. It is certainly very much easier to suture a clean incision than a ragged tear. Also the episiotomy wound is situated in a very much more accessible location than the laceration usually is. The site of the incision should be at the junction of the middle with the posterior third of the lateral half of the vulvar girdle when the occiput is under the pubic arch. The incision should be made in a line with the axis of the patient's body and not in a line with the axis of the pelvic outlet. Incisions may be made on both sides if deemed best. The wounds may be sutured with continuous cat-gut suture immediately after the child is delivered if circumstances will permit, the anesthesia being slightly increased over what it was during the final stage of delivery. In primipara preparations for such operation should be made beforehand.

The position of the patient during the second stage I leave largely to the choice of the patient. If this stage lasts a long time I insist on frequent change of position. I think the lateral position a good one, but the greater number of my patients are in the dorsal position at the time of delivery. Some women say that they can not endure the lateral position during severe pains. In some cases in which the expulsive force of the uterus seems to be unavailing, change of position has seemed to promote progress.

When the head is born it must be supported with the hand. Too great haste should not be sought in the delivery of the body. I generally raise the head well up against the pubic bone and deliver the posterior shoulder first. There are those who prefer to deliver the anterior one first, but I doubt if there is much choice in the matter. The force of the uterus should generally be depended upon to deliver the body. Sometimes it is necessary to hook the finger in the axilla and make traction.

When the child is born it should be turned on its face and partially inverted to allow secretion to drain from the nose and mouth. The finger may be required to remove tenacious mucus. After two or three hearty cries a warm blanket should be wrapped about it, and then placed in the bed between the mother's limbs if she lies on her back. It should be allowed to remain in this position until the after birth is delivered, or until pulsations in the cord have ceased. The child is

then anointed with oil, the cord tied at a convenient point and the child removed from the bed.

The Placental Stage.—I believe that the placental stage is a point at which many physicians fall down in obstetric practice. The vagina is torn and bruised and in a condition favorable for pathologic bacteria to do their worst. If no special pains have been exercised to sterilize the external genitals, the wonder is that the fingers can ever be introduced without infecting the patient. There is seldom any need of introducing the fingers for the removal of the placenta. If it is done it should be only after very careful preparation of the hands. Too great haste is the rule on the part of physicians at this stage. The delivery of the placenta should not ordinarily be expected under thirty to forty-five minutes. During this time someone should keep the uterus contracted by keeping the hand over the fundus. When relaxation of the uterus occurs gentle massage should be used to produce contraction. Should these means fail to deliver the placenta after thirty minutes, Credé's expression method should be used. Too great haste in removing the placenta not only exposes to danger of infection, but to tearing away a piece of the placenta which, remaining in the uterus, gives rise to trouble later. Inversion of the uterus sometimes is caused by traction upon an adherent placenta. Uterine contractions, assisted, if need be, by forcible expression, will generally deliver the placenta whole.

Don't get in a hurry. Your haste will be the cause of some mother's death some time. Whatever is worth doing at all is worth doing well. Let not a desire to get home lead you to slight your duty.

After Care.—The after care of a woman recently confined is another point at which physicians often fall short of doing their duty. I consider the care of a woman following confinement to be just as important as the care of a patient upon whom laparotomy has recently been performed.

Following the delivery of the placenta the vulvar region should be carefully cleansed with a 1 to 1,000 bichlorid solution, and careful examination made for lacerations. Lacerations of sufficient size should be sutured at once unless there is sufficient reason for delay. After the external parts have been cleansed an obstetric pad should be dipped into a hot bichlorid solution of 1 to 2,000 strength and placed over same. A binder is then pinned around the patient only tightly enough to be comfortable. The vulvar pad is then secured in place by a clean cloth pinned to the binder in front and behind.

I use the wet bichlorid compresses in all cases unless there is some sufficient contraindication. Sometimes the bichlorid causes irritation, in which case the strength may be reduced. If a 1 to 4,000 solution still causes irritation I use a normal salt solution or dry sterile pads, and use a 1 to 2,000 bichlorid solution for a wash three times a day. With this treatment it is the exception for the lochial discharges to become foul. An absence of bad odor is the exception with any other method of treatment that I have seen. I use the wet compresses for four to six days in average cases. If there are perineal sutures I use them till after the removal of the stitches.

I generally furnish with each case two dozen obstetric pads, made as follows: Pieces of gauze about 12 by 18 inches in size are cut, and also pieces of absorbent cotton about 4 by 10 inches. A piece of cotton is then folded in a piece of gauze, making a pad about 4 by 10 inches. A few pads two or three times as large as the above are desirable for the first day, while the discharges are free. These pads when used wet need not be otherwise sterilized than by soaking in boiling bichlorid solution for ten minutes.

Results.—The question naturally arises, what better results follow this method than follow other methods in the conduct of labor? We know that the above technique is carried out in comparatively few of the ninety thousand births which occur in Illinois annually. Some of the hospitals have reported from three to five thousand births without a single death from infection. The great puerperal mortality comes not from the hospitals but from private practice. I have no doubt that incompetent midwives are responsible for a large part of puerperal mortality. But I positively know that an undue amount comes from the general

practitioner. I wish to give my experience. I have heard men tell their method of obstetrical practice and then say that they never lost a case. Tell me your method and I'll tell you your record. No man need say that he uses slipshod methods and has no puerperal mortality. If he does not have it is evidence that he has no obstetrical patients. I challenge any man who gives no attention to the modern antiseptic conduct of labor to compare his record with mine. I will give you the facts of my cases and let you be the judge as to whether the technique described prevents infection or not. I have kept pretty close watch of my patients and have the following variations from the normal course to report.

In one case the woman was taken the third day with sore throat, fever, severe headache, etc., and I made a diagnosis of influenza. The illness lasted three days. There was not at any time anything to lead me to suppose that there was puerperal infection. In another case a woman having a "eaked" breast had a temperature of 102 or 103 for about two days. I was unable to find any other evidence of infection. Another woman had a temperature of 102 or more at time of confinement. I believe that she had influenza at the time. There never were any symptoms of infection. Another woman who had a "cold" and cough at time of confinement had a chill on the thirteenth day. She developed high fever, a pain in the side of the chest and rusty sputum the next day. The following day I was surprised to find the temperature normal. No physical evidence of pneumonia could be found. Recovery was uneventful and there were never any symptoms of infection. Last year I had two cases of infection. In the first case a trained nurse was in attendance and the labor was conducted without a single internal examination. A perineal laceration was sutured under what I thought to be good antiseptic technique. There was free purulent discharge and temperature of 103 on the fifth day. A single gentle curettage, using a rinsing curette and a 1 to 4,000 bichlorid solution was followed by permanent normal temperature in six hours. Two weeks later I had another case almost exactly like the one preceding. The treatment and results were the same. Another woman had valvular disease of the heart. She had not had proper care during pregnancy and was in a terribly toxie condition at confinement time. Labor was normal and her recovery was better than expected. She was up the third week. In the latter part of the fourth week she was taken with symptoms resembling appendicitis. I was not sure whether there was uterine infection or not. She was kept in bed on regulated diet and carefully nursed. She improved until the second week of her illness, when general peritonitis rapidly developed, causing her death on the forty-eighth day after confinement.

I believe that I have had only two cases of puerperal infection in over ten years of general practice. I believe that such a record can be obtained only by giving attention to the details in the conduct of labor cases. I am acquainted with physicians who have not practiced longer than I, who would require the fingers of both hands upon which to count the number of women who have died of puerperal infection under their care. I know one physician who lost four such cases during one winter. I got hold of one of his cases once. The woman had a temperature of 103 or 104, was in a cold perspiration, limbs cold to the knees, was vomiting and had a distended and tender abdomen. The discharges were foul to an extreme degree. The doctor had visited her that morning. No effort had been made to clean up the patient. No effort had been made at any time to clean up. Even the first cleansing and the changing of the bed had been left to a neighbor woman.

I protest against such things as this. And yet that man is not all there are of that class. I positively know that there are more, but the proportion of such is not large. But we should all try to improve ourselves, and see to it that no orphans can point their fingers at us and say, "'Twas you who robbed me of a mother's care and a mother's love." Let no little mounds of earth be raised as a perpetual monument to our lack of faithfulness. Let us be faithful to our trust. Our reward in dollars and cents may not be commensurate with our service, but there is a reward which shall outlive our day, and of which we may some time be proud.

Dr. E. B. Owens, of Dixon, read a very interesting paper on "Cesarean Section, with Report of a Case," which was greatly appreciated, but for want of time the discussion was postponed, together with Dr. Cheadle's paper, until Dr. Cotton had spoken, he having been unable to present his paper the previous day.

Dr. A. C. Cotton, of Chicago, then gave his interesting and exhaustive treatise of infant feeding.

This completed the program, all having responded except Charles D. Thomas, of Peoria, and Denslow Lewis, of Chicago, who had informed the secretary by letter that they could not be present, and C. G. Beard, of Sterling, moved we adjourn to meet in December, 1909.

OGLE COUNTY.

The Ogle County Medical Society met in regular session in the lecture room of the library in Polo, Ill., Wednesday, July 21, 1909. Dr. J. M. Beveredge, of Oregon, presided. The minutes of the previous meeting were read by the secretary and approved. Among the visiting physicians present were Drs. Owens, Le Sage, Law, Murphy and Hunt, of Dixon; Dr. Powell, of Forrester; Dr. McPherson, of Hazelhurst; Dr. Runnels, of Milledgeville, and Dr. Donaldson, of Polo. There were also present Mrs. W. A. Herriek, superintendent of the Bethwell Sanatorium, Miss Marian Hamilton, of Dixon, Miss Helene Hackett, graduate nurses, and Miss Walker, of Polo.

Among the physicians of the society present were Drs. Beveredge, of Oregon; Brown, of Forrester; Kretsinger, of Leaf River; Brigham, of Brookville; Beard, Maxwell, Krebs, Houston, Powell and Keetor, of Polo. The following officers were elected for the coming year: President, Dr. J. M. Beveredge, of Oregon; vice-president, Dr. L. A. Beard, of Polo; secretary-treasurer, Dr. J. T. Kretsinger, of Leaf River; delegate to the State Medical Association at Danville, Dr. Geo. Maxwell, of Polo; alternate, Dr. S. D. Houston, of Polo; censor, Dr. C. R. Brigham, of Brookville. Dr. E. B. Owens, of Dixon, read an able paper, "Surgery of the Gall Tract." This subject was well discussed by Drs. Law, Hunt, Murphy, Donaldson, Maxwell and Keetor. Dr. C. A. LeSage, of Dixon, read an excellent paper, "The Necessity of the Early and Frequent Examination of the Ears of Children During the Acute Infections," which was discussed by Drs. Owen, Hunt, Beard, Keetor and Murphy. Dr. Owen's and Dr. LeSage's papers were full of interest and of great worth to every member present. The society expressed its gratitude to the doctors and all visiting friends present by a vote of thanks. The meeting adjourned to meet in Oregon the third Wednesday in October, 1909.

DR. J. T. KRETSINGER, Secretary.

NEWS OF THE STATE

PERSONAL.

Dr. and Mrs. Fenton B. Turk, Chicago, have gone abroad.

Dr. and Mrs. R. Jay Atwood, Paxton, sailed for Europe August 2.

Dr. Louis J. Linder, East St. Louis, sailed for Europe September 2.

Dr. Edward Hasson, Peoria, was operated on for appendicitis August 10 at Proctor Hospital.

Dr. William S. Howell, Winnebago, has been appointed local surgeon for the Northwestern system.

Dr. W. G. Caron, Aurora, has been appointed supreme treasurer of the Knights of North America.

It is to be hoped that Dr. Cook will maintain his professional dignity in his dispute with Commodore Peary.

Dr. W. E. Taylor of the Watertown Hospital was granted six months' leave of absence, becoming effective August 1.

Dr. William Rittenhouse, Chicago, who was injured recently in a street car accident, has recovered and resumed practice.

Dr. John Guy, Woodstock, spent four months in Europe looking up the newest in medicine and surgery in the various hospitals.

Dr. John M. Phifer, Stewardson, has been appointed assistant surgeon of the Atchison, Topeka & Santa Fe Hospital at Topeka.

Dr. L. A. McFadden, Peoria, who was operated on recently in St. Francis Hospital for intestinal obstruction, is reported to be improving.

Dr. G. W. Lipshuleh, Chicago, was elected president of the Kosher Hospital Association, which is planning the erection of a new building.

Dr. Henry M. Bascom, Ottawa, has been appointed chief surgeon of the Illinois Traction Company and of the hospital association of that system.

Dr. Harriet McDaniels, Murphysboro, is spending some time in the college clinics. The Doctor lost her husband recently and is taking up his practice.

Dr. S. Josephine McCollum, recently medical superintendent and for ten years anesthetist at Mary Thompson Hospital, has withdrawn, entered private practice, and will make anesthetics a specialty.

Prof. C. Yelverton Pearson and son, Dr. Pearson, of Cork, Ireland, were interested visitors at a demonstration by Dr. Emil G. Beck of the use of bismuth paste at the North Chicago Hospital on Labor day.

Dr. J. H. Roach, Wheaton, has returned to practice after spending some time in postgraduate work in Chicago. Dr. J. G. Stone, who looked after his practice during his absence, has located in Burlington, Iowa.

Dr. W. L. Baum of Chicago received an ovation at a dinner in his honor given by the Chicago Yacht Club in recognition of his trip to Bermuda in his yacht, the *Amorita*. The members of the club hailed the doctor as a gallant sailor man and congratulated themselves on the acquisition by the club fleet of the largest sailing yacht on the great lakes. In the Mackinaw race July 24 the *Amorita* was first "over the bar," but it lost to the *Valmore* on time allowance. It is to be hoped a later race will have a more decided outcome.

NEWS ITEMS.

Chicago doctors, attention!

Your new street number, if you please?

If your address on *THE JOURNAL* wrapper is incorrect, please send correct address to the assistant editor, 4603 Evanston avenue, Chicago.

The civil service commission on September 3 sustained the charges of Health Commissioner Evans against Dr. Joseph F. Biehn and ordered that he "be removed from his office as superintendent of the laboratory of the department of health and from the service of the City of Chicago."

By the will of the late Judge Solomon H. Bethea \$150,000 is bequeathed to the Dixon Public Hospital on condition that the name of the hospital be changed to the Katherine Shaw Bethea Hospital and that the income from the money be used to care for the poor patients of Dixon and Palmyra townships.

The stereoscopic photograph accompanying Dr. Beck's article should be examined with a stereoscope to bring out the details. Figure 2, illustrating the post-tubercular scars, referred to in the article, was not finished in time to insert in *THE JOURNAL*. Anyone desiring can secure a copy of this card from Dr. Beck.

Under the direction of E. B. Huey of Western Pennsylvania University at Allegheny, a department of psychology has been opened at the Institute for Feeble-minded at Lincoln. The object of the new department, which is the first of its kind in the United States, is to study the minds of the inmates of the institution and ascertain how they may best be employed.

Mrs. Nelson Morris, widow of Nelson Morris, the late Chicago packer, has presented Michael Reese Hospital with \$250,000 for the construction of a building for medical research.

The cable announcing the sudden death of Mrs. Morris following an automobile accident in France and mentioning her many charities arrived soon after the announcement of her bequest to the Michael Reese Hospital. "*Requiescat in pace.*"

Dr. Frank P. Norbury of Jacksonville was appointed superintendent of the Kankakee Hospital for the Insane, September 7, to succeed Dr. James L. Greene, whom Governor Deneen made the alienist for the state

board of control of the state charitable institution. Dr. Norbury has had a long and valuable experience at various institutions in this state and elsewhere, and no doubt will continue the successful administration of the Kankakee institution inaugurated by Dr. Greene.

PUBLIC HEALTH.

Typhoid is said to be epidemic at Pesotum.

The laboratory of the Chicago Department of Health has been removed to the first floor of 218 Washington street.

Dr. H. W. Dale, McLeansboro, states that several samples of water from the city hydrants were reported unwholesome upon examination by the State Board of Health.

It is planned to have a tent colony in operation in old Prospect Park, Peoria, by the first of this month. The institution is expected to be self-sustaining after the first six months.

The school for tuberculous children which has been maintained by the Board of Education and the Chicago Tuberculosis Institution at Seventy-Fifth street and Vincennes road closed September 2.

The physicians of Monmouth are reported as being anxious over a number of cases of typhoid fever there recently. They are advising the public who use well-water to boil it. The city water is not contaminated.

At the Veterinary Medical Convention held in Chicago last month Dr. A. D. Melvin, head of the Bureau of Animal Industry, United States Department of Agriculture, advocated payment to farmers whose stock is condemned as tubercular to the extent of at least 50 per cent. of its value.

In the comparison between eight months of 1909 and 1908 there were thirty-three fewer deaths from typhoid fever and 533 fewer deaths from all causes under one year of age. The deaths from pneumonia increased from 2,691 to 3,380. By combining the figures for pneumonia, bronchitis and influenza—the so-called impure air diseases—a saving of fifty-seven lives is shown. The death rate from all causes dropped from 14.45 to 14.16 per thousand.

The annual report of the board of inspection of the Chicago House of Correction states that a saving of at least \$30,000 a year can be secured by transferring all juvenile commitments from the House of Correction to the State School for Boys at St. Charles. Dr. C. Sceleth, the house physician of the school, states that 314 operations were performed at the institution and that 150 prisoners not capable of manual labor on account of their ailments were enabled as the result of operations to do a hard day's work upon leaving the institution.

The Bulletin of the Department of Health of Chicago reviewing the mortality returns for August noted an increase of thirty-two deaths from diarrheal diseases under two years of age, as compared with August, 1908, in spite of the very active campaign of education by the department in conjunction with the Associated Charities and other organiza-

tions and individuals. Special investigations of the sanitary conditions of the premises and reports on the food of the infants and on the nativity of the decedent's parents are made in all these cases. The mode of life of the Slavonian families gives them a sinister prominence on the death roll, with the Italians a bad second. The total deaths under one year were fifteen fewer, and the total death rate dropped from 14.62 to 14.57 per thousand.

CHANGE OF LOCATION.

Dr. C. M. Kaley has removed from Newton to Olney.

Dr. W. F. Ernest, of Ashkum, has retired from practice.

Dr. William V. Secker has removed from Evanston to Tolono, Ill.

Dr. John B. Seruggs has removed from O'Fallon to Shawnee, Okla.

Dr. W. C. Riehman has removed from East St. Louis to Maryville, Ill.

Dr. Cynthia A. Skinner has removed from Monmouth to Los Angeles, Cal.

Dr. T. G. Knappenberger has removed from Macomb to West Pullman.

Dr. W. J. J. Paris has removed from Cave-in-Rock, Ill., to Paragould, Ark.

Dr. Walter C. Mason, of 1653 West Sixty-Third street, Chicago, has removed to Ashkum.

Dr. George Washburn has removed from Hanna City to No. 219 Cooper Street, Peoria.

Dr. Louis F. Alrutz has removed from 1219 South Harding Avenue, Chicago, to Oregon, Ill.

Dr. Carl J. F. Roehow has removed from Lincoln to No. 1206 Fourth Avenue, Rock Island, Ill.

Dr. W. Swartout, formerly of Wilmette, has located at Evanston and Wilson avenues, Chicago.

Dr. Frederick H. Martin has removed from Libertyville to 1440 Glenarm Street, Denver, Colo.

Dr. Elmore S. Pettyjohn has removed from 902 Stewart Building, Chicago, to Topeka, Kans.

Dr. Louis J. Linder of East St. Louis, Ill., has gone to Vienna, where he will spend a year.

Dr. Walter E. Nowers has removed from No. 1119 West Fifty-ninth Street, Chicago, to Kenesaw, Neb.

Dr. W. T. Tinsley, of Tolono, has removed to Cantrall and purchased the property of Dr. O. P. Grant.

Dr. John H. Fulgham has removed from Lebanon to East St. Louis, Ill., Second Street and St. Clair Avenue.

Dr. Charles E. Wright has removed from Vancouver, B. C., to Rockford, and taken offices in the Masonic Temple.

Dr. O. P. Grant, of Cantrall, has removed to Easton and entered into partnership with his brother, Dr. W. R. Grant.

Dr. Allen B. Kanavel has removed his office from 983 East Fifty-sixth Street to 1368 East Fifty-third Street, Chicago.

Dr. E. L. Crouch has removed from Mt. Vernon, Ill., to New York City. His address there will be Postgraduate Medical School.

Dr. Arthur L. Sherrill, formerly at No. 846 First National Bank Building, Chicago, has moved to Friek Building, Pittsburg, Pa.

Dr. F. A. Holzhaner has removed from Chicago to Buckingham, Ill., where he has purchased the practice of Dr. G. H. Just, who has removed to Pukwana, South Dakota.

Dr. Elva A. Wright is taking a short course in medicine at the University of Edinburgh, and expects to return to his home in Lake Forest, Ill., the latter part of October.

Dr. G. H. Just has removed from Buckingham, Ill., to Pukwana, Brule County, South Dakota, having sold out his practice at Buckingham to Dr. F. A. Holzhauser, formerly of Chicago.

MARRIAGES.

IRVIN S. KOLL, M.D., to Miss Melanie Alice Weil, both of Chicago, September 8.

ALMERIN W. BAER, M.D., Chicago, to Miss Rose Berns of Peabody, Kan., August 28.

ARIA LOUIS DERRIGER, M.D., to Miss Ella Jane Spicer, both of Chicago, September 4.

E. C. FERGUSON, M.D., to Miss Etta Louise Schwarz, both of Edwardsville, September 7.

JOSEPH B. BYWATER, M.D., Mount Morris, Ill., to Miss Ethel Dunham of Manchester, Iowa, recently.

MYRON E. BENNETT, M.D., to Mary Margaret Wheeler, M.D., both of Grant Park, at the residence of Dr. and Mrs. Herbert Wheeler, Sept. 6, 1909. This marriage is unusual and has been remarked in the daily press, because the bride is the daughter of a doctor, herself a doctor and marries a doctor. All parties concerned are to be congratulated.

DEATHS.

KNUD L. BOYSEN, M.D., Kiel, Germany, 1863, died at his home in Chicago, August 25, from nephritis.

CHARLES ALEXANDER GARNSEY, M.D. (license, Ill.; years of practice, 1878), for sixty-five years a practitioner, died at his home in Batavia, Ill., August 19, aged 95.

GEORGE A. MARTIN, M.D., Medical College of Ohio, Cincinnati, 1877; a veteran of the Civil War; died at his home in Brownstown, Ill., August 28, from nephritis, aged 64.

GEORGE MANTON ANGELL, M.D. Harvard Medical School, Boston, 1847; died recently at his home in Atlanta, Ill., from senile debility, and was buried September 1, aged 89.

CARL ERNEST KURTZ, M.D. University of Pennsylvania, 1869; a member of the American Medical Association; died at his home in Chicago, September 6, from heart disease, aged 68.

ALLEN DE TURK HUNTER, M.D., Jefferson Medical College, Philadelphia, 1884; a member of the Illinois State Medical Society; died at his home in Savannah, Ill., August 18, after an operation for peritonitis, aged 46.

WILLIAM T. GRIFFITH (license Ill., years of practice, 1887); for forty-six years a practitioner of Washington, Ill., and formerly coroner of Tazewell County; died at his home in Washington, September 2, from heart disease, aged 76.

RUDOLPH GMELIN, M.D. University of Tübingen, Germany, 1854; a volunteer surgeon during the Franco-Prussian War, and later a practitioner of Chicago, Milwaukee, and Elkader, Iowa; died at his home in the latter city, August 3, from heart disease, aged 78.

GEORGE FRANCIS SHEARS, M.D. Hahnemann Medical College, Chicago, 1880; president and senior professor of surgery in Hahnemann Medical College, and one of the most prominent homeopathic practitioners of the middle west; consulting surgeon to the Cook County, Streeter and Silver Cross hospitals; attending surgeon to Hahnemann Hospital; director of the Chicago Tuberculosis Institute, and assistant editor of the *Clinique*; died at his home in Chicago, August 27, from paresis, aged 52.

CHARLES T. WILBUR, M.D., Berkshire Medical College, Pittsfield, Mass., 1860; a member of the Michigan State Medical Society; assistant surgeon and surgeon of the Fifty-Ninth and Ninety-Fifth Ohio Volunteer Infantry during the Civil War; from 1869 to 1884 superintendent of the Illinois State Institution for the Feeble-Minded at Jacksonville and Lincoln; superintendent and proprietor of the Wilbur Home for the Feeble-Minded, Kalamazoo, Mich.; a member of the board of trustees of the State Institution for the Feeble-Minded, Lapeer; died suddenly at his home in Kalamazoo, August 19, from cerebral embolism, aged 74.

W. E. HAINES, M.D., died Sept. 9, 1909, at his home in Bushnell, from nephritis and uremia, having been in failing health for some time, aged 70 years. He was born in Chester County, Pennsylvania, in 1839. He served for three years in Company G of the Eleventh Illinois Cavalry, then reenlisted and served until the end of the war, when he returned to Pennsylvania and took up the study of medicine in Pennsylvania University at Philadelphia, where he graduated in 1867, and the same year was

united in marriage with Miss Marianna Starr of Chester County. He then came to Illinois and located at Ellisville, where he remained until 1880, whence he removed to Bushnell, which place has since been his home. Dr. Haines was a member of the Grand Army of the Republic, and also of the Independent Order of Odd Fellows. He held a high place in the regard of his brethren of the medical profession and was recognized as a learned physician and a skilful and experienced surgeon. He was a member of the Bushnell Physicians' Club, the McDonough County Medical Society, the Illinois State Medical Society, and the American Medical Association. He was also an active member of the International Congress on Tuberculosis. Dr. Haines was a man of positive convictions—straightforward, courageous, outspoken. His friendship gripped like hooks of steel and never faltered. He was a good citizen, a loving husband and father, and a neighbor and comrade beyond compare. His kind can ill be spared from a world where there is a field for the best activities of real men. The funeral services were under the auspices of Bushnell Lodge, No. 322, I. O. O. F., and with Carter Van Vleck Post, No. 174, G. A. R., acting as escort. The interment was in Bushnell cemetery and the great attendance was a significant token of the high esteem in which Dr. Haines was held by those among whom he had passed most of his life.

Book Notices.

PRACTICAL DIETETICS. With Special Reference to Diet in Disease. By W. Gilman Thompson, M.D., Professor of Medicine in the Cornell University Medical College in New York City, visiting physician to the Presbyterian and Bellevue Hospitals. Fourth edition, illustrated, enlarged and completely rewritten. New York and London, D. Appleton & Co., 1909. Cloth, \$5; half morocco, \$6.

Four editions of a work of this character in fourteen years indicates that this book has filled a long-felt want in the medical world. It is certainly the best book of its kind before the medical public and in its improved form should find a large number of dealers.

MINOR OPHTHALMIC AND AURAL TECHNIQUE. A Short Treatise Dealing with Minor Procedures About the Eye and Ear. Adapted to use of those requiring a comprehensive knowledge of this subject. By Alfred Nicholas Murray, M.D., Chicago, assistant in the Department of Otology and Laryngology, Rush Medical College (Children's Memorial Hospital), formerly Clinic Assistant in Ophthalmology, Rush Medical College. One time Voluntary Assistant in the Universitaets Augenklinik, Breslau. Member of the American Medical Association. With 98 illustrations in the text, reproduced from photographs and original drawings. Cleveland Press, Chicago, 1909. Cloth, \$3.

Dr. Murray's work takes up a branch of the subject which appeals particularly to the general practitioner in that it deals with the minor procedures which occur in general practice. It is well illustrated by cuts and engravings and will form a safe guide for the nurse and general practitioner.

AMERICAN PRACTICE OF SURGERY. Vol. vi. Wm. Wood & Co., New York.

Seventy-five per cent. of the volumes of this system have now appeared and as the set approaches completion the volumes become of more definite, practical interest to the surgeon and practitioner, because of the articles dealing with the

regional surgery. The articles in this volume are particularly concerned with the surgery of the face, head, neck, thorax and spinal column, diseases of the female breast and venereal diseases. The pathological treasures of various surgical centers of America have been drawn upon extensively for illustrations and certainly no one wishing to keep in touch with American surgical practice can afford to be without the volumes so ably edited by Drs. Bryant and Buck. The type, paper, wood-cuts and colored illustrations leave nothing to be desired. We await the remaining volumes of the series with particular interest.

CARE OF MOTHER AND CHILD. By Clarence M. Cheadle, M.D., Member American Medical Association, Illinois State Medical Society, North Central Illinois Medical Association, Lee County Medical Society; with an introduction by Charles Edwin Ruth, M.D., formerly Professor of Surgery and Anatomy, Keokuk Medical College, now of Ponce, Porto Rico. Published by the author, Ashton, Illinois, 1909. Cloth, \$2; flexible leather, \$2.50.

This book of 350 pages is a novelty in that a country practitioner has published it and it is printed in one of the smaller cities of the country. Of course, this is no criticism, but rather a recommendation and undoubtedly the facts presented are the result of actual contact with the problems affecting the mother and baby from the view-point of the country practitioner in active service. The arrangement is excellent and the advice given is up-to-date in every respect. We can recommend it heartily to our readers and hope that Dr. Cheadle will realize all his expectations in its publication.

TUBERCULOSIS. A Treatise by American Authors on Its Etiology, Pathology, Frequency, Semeiology, Diagnosis, Prognosis, Prevention, and Treatment. Edited by Arnold C. Klebs, M.D., Chicago, with 3 colored plates and 243 illustrations in text. New York and London, D. Appleton & Co., 1909. Price, \$6.00 net.

As the author says, the literature on tuberculosis has become so enormous that a continuous and systematic discussion of the whole subject by a single author has become an impossibility. Only the older practitioners can appreciate the remarkable advance which this volume symbolizes. Prior to the discovery of the bacillus tuberculosis by Koch scientists were groping in the dark, and when that epoch-making discovery was made a train of thought was set in action which will certainly result in the suppression of the disease. Some of the best minds in America have been enlisted in this undertaking and the result is a complete résumé of all that was known upon the subject when the forms were closed. It should be in the library of every progressive practitioner in Illinois.

MEDICAL SOCIOLOGY. A Series of Observations Touching Upon the Sociology of Health and the Relations of Medicine to Society. By James Peter Warbasse, M.D., surgeon of the German Hospital, attending surgeon to the Seney M. E. Hospital; member of the American Medical Association, American Association for the Advancement of Science, American Society of Sanitary and Moral Prophylaxis, American Medical Library Association, Ethical Social League, etc. New York and London, D. Appleton & Co., 1909. Price, \$2 net.

Dr. Warbasse was for some time editor of the *Journal of the New York Medical Society* and has taken up in this volume of 355 pages a number of live topics which will appeal to the profession as well as to the layman. Among these we mention the following titles of chapters of particular interest: Federal Interest in the Health of the People, Healthfulness and Happiness, The Alcohol Question, The Venereal Peril, The Instruction of the Young in Sexual Hygiene, College Preparation for the Study of Medicine, The Medical Expert Witness, Work and Play, The Doctors' Sons. These are only a few of the many topics which will be found valuable reading for a spare half hour.

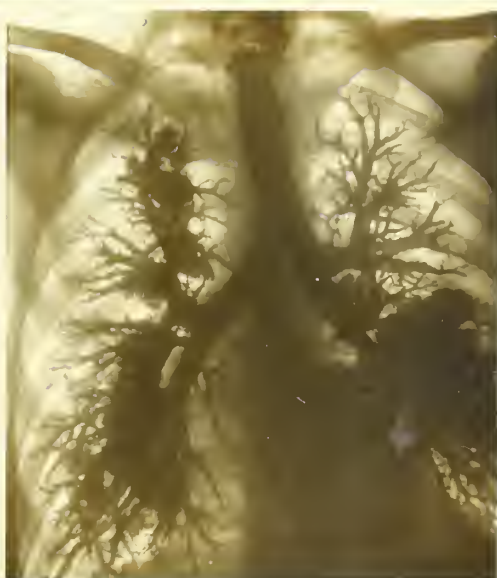
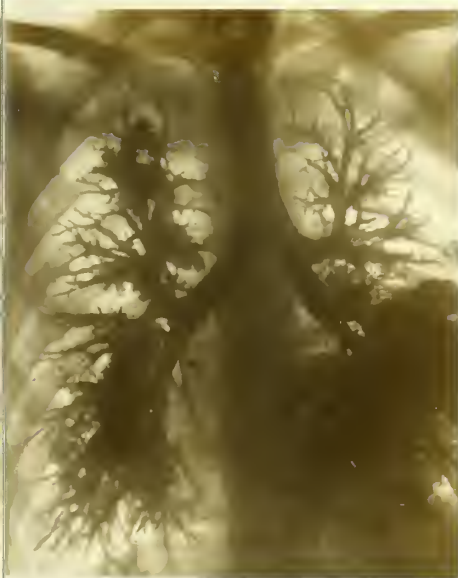
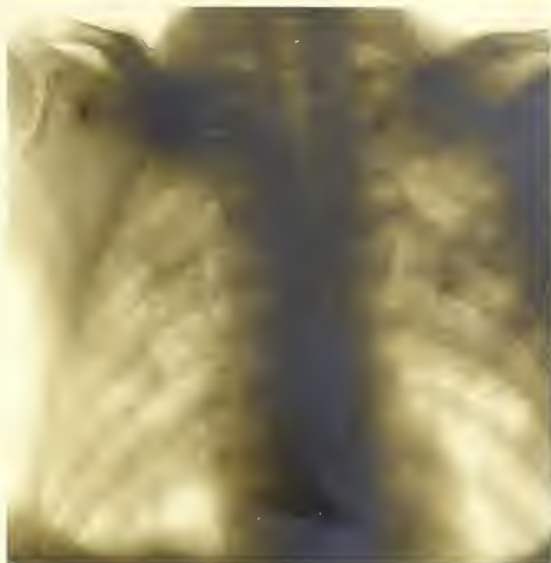


Fig. 1. Active Tuberculosis

Illustrating Article of Emil G. Beck, Chicago

By viewing this stereoscopic radiograph through a hand stereoscope we obtain a plastic picture of the chest of a person in the advanced stage of tuberculosis. Both lungs are densely studded with tubercular areas. The shadows on a single plate appear in one plane and thus seem to invade the entire lung tissue. Through the stereoscope we obtain a correct optical view. Here the shadows are separated and seen in their respective depths within the chest, appearing like solid bodies surrounded by a halo and imbedded in lung tissue. This active form of tuberculosis is easily differentiated from the post tubercular state, where the fibrous scars stand out distinctly like spiders surrounded by clear lung tissue.

Supplement to October, 1909, Number of Illinois Medical Journal.

Fig. 5. Bronchial Tree injected with Bismuth Paste

Illustrating Article by Emil G. Beck, Chicago

By viewing this Stereo-radiograph through a hand stereoscope one obtains a true reproduction of the bronchial tree, in plastic effect, which clearly marks its relations to other structures within the chest.

The division of the trachea takes place opposite the sixth vertebra. Exact measurements show that the right bronchus divides at an angle of 17° , and the left at 40° from the line of the trachea.

The number of subdivisions in the bronchi vary from 6 to 10, those running to the lower lobes having more subdivisions.

The bronchiols appear somewhat beaded, due probably to overdistension by the injected bismuth paste. Even the smallest bronchiols, and in a few cases the air vesicles, have been injected, the latter resembling small bunches of cauliflower placed at the ends of the bronchiols.

This radiograph also demonstrates that the liquified paste will enter very minute channels.

Supplement to October, 1909, Number of Illinois Medical Journal.

ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF
THE ILLINOIS STATE MEDICAL SOCIETY

ENTERED IN THE SPRINGFIELD POSTOFFICE AS SECOND-CLASS MATTER.

VOL. XVI SPRINGFIELD, ILL., NOVEMBER, 1909 No. 5

ORIGINAL ARTICLES

THE CLINICAL SIGNIFICANCE OF ALBUMIN AND CASTS IN THE URINE.*

ARTHUR R. ELLIOTT, M.D.
CHICAGO.

The clinical significance of albumin in the urine is one of those perennial medical problems that are being forever discussed and never satisfactorily and finally solved. The difficulties besetting an unprejudiced consideration of this question arise largely from our inability to divest our minds of prejudices begotten by the older teachings. In former times albuminuria and Bright's disease were terms of nearly identical practical significance. In the light of knowledge more recently accumulated, no such definite significance can any longer be attached to albuminuria, common clinical experience demonstrating that it is not always a faithful symptom of Bright's disease, nor does it invariably imply the existence of a renal lesion. Notwithstanding this more enlightened viewpoint, it still remains a fact that in the ordinary course of practice physicians look on albuminuria as indicative of nephritis unless the evidence in favor of some other etiologic condition is overwhelming. The problem of the clinical interpretation of albuminuria becomes greatly simplified if we grant at the outset that it is a symptom which *per se* has no fixed value as a diagnostic sign except perhaps the broad general significance that some derangement of the genitourinary system exists.

The kidney is a highly differentiated organ, which in the performance of its excretory functions, is exceptionally subject to irritations that may on one hand initiate grave organic defects or on the other merely appear as slight and transient alterations which undergo satisfactory resolution without permanent impairment of structure. In either event albumin

* Read in a Symposium on Nephritis at the Fifty-Ninth Annual Meeting of the Illinois State Medical Society, Quincy, May 18, 1909.

may appear in the urine, and the mere fact of its presence fail to throw much light either on the nature or probable course of the condition giving rise to it, its significance being judged very largely on the symptoms presented by the patient. This is not always easy, nor indeed possible, since grave organic defects of the kidneys may exist and give rise to few other symptoms except albuminuria, while, on the other hand, cases frequently occur in which albumin in considerable quantity may exist in the urine for a long time without entailing serious consequences, either general or renal. This renders the interpretation of cases presenting albuminuria without any other marked symptom oftentimes a matter of singular difficulty.

As a symptom, albuminuria is to be distinctly held in mind as not only an accompaniment of Bright's disease, but as well of acute and chronic inflammatory conditions of other portions of the genitourinary tract. It may result from blood changes, as is observed in scurvy, purpura, leukemia, etc. It is frequently noted as a concomitant of disorders of digestion and elimination. In the zymotic diseases and acute infections it is exceedingly common. In short, any serious disease wherever located tends to produce secondary toxic effects on the renal secreting structure, resulting in the presence of albumin and casts in the urine. Certain static circulatory states, such as result from heart lesions, hepatic cirrhosis, abdominal tumors, etc., produce albuminuria. There is also to be considered the large class of so-called accidental or spurious albuminurias in which albuminous contamination of the urine takes place after it has been secreted by the kidneys.

Notwithstanding the diversity of its etiology, albuminuria, whether transient or permanent, must be regarded as pathologic. The so-called functional albuminurias (cyclic, orthostatic) constitute no exception to this rule. Although albuminuria may not necessarily mean serious organic mischief in the kidneys, it invariably points to some urinary or systemic perversion, and its presence, however slight, demands serious care and consideration before a decision is reached as to its being of no clinical significance.

Notwithstanding the multiplicity of conditions which determine the passage of albumin into the urine, the fact should not be lost sight of that it still constitutes most important evidence of nephritis, and is of immense value in the diagnosis of that condition. While recognizing this fact, it is equally important to bear in mind that the demonstration of albumin in the urine is not a *sine qua non* for the diagnosis of Bright's disease. Albuminuria may be temporarily, mainly, or rarely, entirely absent from the urine during Bright's disease, especially during the interstitial type. It has been noted as absent during chronic parenchymatous nephritis, and during acute nephritis even of the post-scarlatinal form. It is not to be inferred that because albumin is absent in a given case the disease is necessarily mild and non-progressive, for the kidneys may be seriously degenerated and terminal symptoms (uremia, retinitis) present, and yet the urine not show albuminuria. Furthermore, the quantity of albumin in the urine constitutes no just criterion of the gravity

of the kidney lesion. It is true perhaps that when the albumin ranges high in acute nephritis its severity may be taken as a rough gauge of the intensity of the renal involvement. The same may be said of certain cases of chronic parenchymatous nephritis, particularly those displaying amyloid tendencies. In chronic interstitial nephritis the quantity of albumin is wholly unreliable as a means of estimating the extent of the renal gland changes. Cryoscopic studies in nephritis show that comparison of the albumin output and the findings of the freezing point test reveals no direct correspondence between them. By the same means the interesting fact is revealed that the amount of damage to the anatomic structure of the kidney, as shown by the absolute amount of albumin eliminated, is not proportional to the functional disturbance in the kidney, as evidenced by variation in the freezing point.

A form of albuminuria that is encountered during childhood and early adult life to which great interest attaches, is so-called functional albuminuria. The characteristics of this form of albuminuria are that it is transitory, usually intermittent and dependent on some special factor, such as muscular exercise, posture, cold bathing or some particular article of diet, and, moreover, is not accompanied by the systemic and urinary indications of a true nephritis. These albuminurias usually terminate spontaneously without impairment of the renal integrity. At times the albuminuria may follow a definite course, appearing and disappearing with such a degree of regularity at certain times of the day as to assume almost a cycle, hence the term cyclic albuminuria. In many cases the erect position of the body seems to be the determining factor, the albumin disappearing during the night to reappear during the day on the assumption of the upright position. The terms postural and orthostatic are employed to characterize these cases. There is no doubt that this type of albuminuria constitutes a distinct class, and yet too great stress should not be laid on the influence of posture, as it by no means proves that the case is a functional one. There can be no question but that in organic albuminuria dependent on definite renal lesions, often of considerable gravity, the quantity of albumin may be notably influenced by posture. Although I think there is a distinct urinary syndrome that may be appropriately designated orthostatic albuminuria occurring without an accompanying nephritis and dependent on circulatory disturbance in the kidney, the postural characteristics which mark this type of case may prevail to some extent in a great variety of albuminurias of different grades of severity and both of so-called functional and organic origin. In Bright's disease there may be diurnal variations in the amount of albumin passed. It is a point of considerable interest that a case of persistent albuminuria may become one of intermittent or cyclic character, whereas one beginning as a cyclic albuminuria may become permanent and persistent. An inconstant albuminuria with urine free in the morning or evening may be the terminal stage, or perhaps the sequel of a former persistent organic albuminuria. The associated symptoms and physical signs constitute the only sure means of distinguishing whether such an albuminuria rests on a purely functional basis or is the initial

manifestation of a grave renal lesion, or perhaps is the terminal stage of a former organic involvement of the kidneys. Chronic interstitial nephritis is the renal lesion with which functional albuminurias are most likely to be confounded, owing to the fact that in both cases the albumin is slight or intermittent.

As a rule, the greater the quantity of albumin in the urine, the more likely is the case to be one of Bright's disease, as a large quantity of albumin is rarely found except in association with undoubted acute or chronic Bright's. It is necessary, however, in considering the amount of albumin, to have regard, not to the proportion in a single specimen, but to the total excreted in the twenty-four hours. A urine may appear only slightly albuminous, but if it be of low density and large volume the total loss of albumin may be considerable and the existence of renal disease strongly indicated. Indeed, of all urines there is none more suspicious of renal disease than a pale dilute abundant urine which contains albumin. On the other hand, when the urine is only slightly albuminous and is at the same time high colored and concentrated, Bright's disease is usually not present.

There has been much dispute regarding the nature and origin of tube casts. The oldest view is that they consist of coagulated fibrin derived from an exudate, such as is found in inflammation elsewhere in the body. This view is no longer tenable, in consideration of the fact that casts unquestionably occur in the urine in conditions where there is not the slightest sign of inflammation, such as renal congestion and simple amyloid kidney. Moreover, casts do not give the same chemical reactions as fibrin. Their failure to occur in many cases of albuminuria seem to indicate that they do not consist of coagulated albumin, as some have held. Furthermore, there is no fixed ratio between the amount of albumin in the urine and the number of casts. The occurrence of casts without albumin in those forms of infection and intoxication in which degeneration and disintegration of the tubular epithelium have been proved, suggests that they are formed from these epithelial elements, and this is the view most generally held. Exactly how this takes place, whether by a secretion from the cells or by a destruction of the cells and their conversion, is not explained. It may be stated that casts are always indicative of a pathologic process in the kidney, more particularly in the epithelial elements, ranging from a mere nutritional or functional disturbance to extensive destruction of the parenchyma. It goes without saying that epithelial casts indicate desquamation of epithelium, fatty, granular and hyaline casts a degenerative process; casts covered with leucocytes an inflammatory process and casts with red blood cells adherent, hemorrhage within the parenchyma. The presence of epithelial casts and the various forms of metamorphosed casts is of the highest diagnostic value. They point unequivocally to disease of the tubular structures of the kidney. The freer from degenerative markings the cast cells are, the more acute it may be inferred is the degree of inflammation.

The metamorphosed epithelial casts always indicate a serious disease of the kidney. An attempt to base a prognosis in any individual case upon the size, diameter and conformation of the casts is of doubtful value, it being very questionable if they offer criteria of sufficient accuracy to form a basis for exact conclusions. Neither is it permissible to draw exact inference from the number of casts present. As a general rule, their number is in proportion to the severity of the nephritis, but there are so many exceptions to this rule as to disqualify it for a good working hypothesis.

There has been much discussion as to the clinical significance of hyaline casts. Since the centrifuge came into general use for the concentration of urinary sediments, hyalin casts are found in many instances in which neither clinical history nor chemical analysis warrants their presence. Inasmuch as these bodies may be present for weeks and months without other indications of renal impairment, the question naturally arises whether they may not exist in urine from kidneys which are practically normal. We are here confronted with the same difficulty as exists in the interpretation of transitory and intermittent albuminuria. Their appearance always points to some abnormality of the kidney, although this may be nothing more than a transitory circulatory disturbance or a mild degree of toxic irritation of the parenchyma. The factor concerned in their production may be an autotoxis or even an unusual and persistent degree of acidity and concentration of the urine. This cylindruria may be transient and may lead to no permanent anatomic lesions, but it is nevertheless pathologic. While not placing too rigid an interpretation on the occurrence of hyalin casts in small numbers, one should always be on guard in such cases, for while they do not necessarily indicate an established nephritis, they may point to a beginning process or, rarely, be the only microscopic indication of an extensive interstitial lesion. As a rule, they are much more significant in young individuals than in those advanced in life in whom arteriosclerosis is becoming established. If with these casts there are present in the urine sediment cylindrical epithelial cells, there is reason to believe that they may indicate a beginning nephritis.

In conclusion, it may be emphasized as a fact that a trace of albumin and hyalin casts in the urine are too often magnified in importance and that the clinical condition as a whole is often not sufficiently considered. Albuminuria and cylindruria have not the fixed diagnostic value they were once supposed to possess. In cases of suspected renal disease the urine should be repeatedly examined and its fluctuations taken into account, and above all things no clinical construction should be placed on urinary findings until a careful investigation has been made of the symptoms and physical signs presented by the patient.

THE NATURE OF THE CARDIOVASCULAR CHANGES IN NEPHRITIS.*

ALFRED C. CROFTAN, M.D.

CHICAGO.

AUTHOR'S ABSTRACT.

In attempting to interpret the cardiovascular lesions occurring together with nephritis, it is important to remember that, on the one hand, many cases of nephritis run their whole course without the appearance of any cardiovascular manifestation whatsoever, whereas, on the other hand, cases of nephritis occur in which increased blood tension makes its appearance within forty-eight hours after the onset of the renal difficulty and rapidly lead to organic cardiac and arterial lesions that persist throughout the course of the disease.

One can hardly say that any particular form of nephritis, using the orthodox text-book classification, is accompanied by cardiovascular changes and any other form not. I have gained the impression that particularly those varieties of nephritis in which the glomeruli are primarily involved or in which the glomeruli participate in a pan-nephritis become complicated by cardiovascular changes.

It is difficult to explain this sequence of events. Hypothetically one might postulate that the glomeruli are intended to excrete certain pressor principles and that in disease of the glomeruli the latter are retained, thus producing high tension and cardiovascular changes. A much more seductive explanation, based on physiologic reasoning, is the following one: the excretion of urinary end-products through the glomeruli is a true process of filtration and a function of the blood pressure, or by implication, of the rapidity of the blood flow through the glomerular arterioles; whereas the excretion of urinary end-products through the epithelia of the tubules is a glandular process of secretion. In destruction of the glomerular tissue, therefore, any attempt on the part of the organism to compensate for this deficiency implies the production of increased blood pressure in the remaining intact glomeruli. This, as a rule, is brought about by an increase of the general blood pressure throughout the body. Such a process, therefore, while conservative and compensatory, hence useful, as far as the kidney function alone is concerned, may become deleterious and dangerous as far as the organism at large is concerned.

In interpreting the origin of the cardiovascular changes following nephritis, it is important to establish where and how they originate. The first and the most constant and the determining feature is high blood pressure. If this persists for a period of weeks, it is followed, first, by an hypertrophy of the left heart, later by an hypertrophy of the right heart and, finally, by arterial degeneration.

The increased blood tension may originate either from the blood itself, from the heart or from the arteries.

The only factor that could lead to an increase of the blood pressure through the direct agency of the blood (not including, of course, the rôle

* Read in a Symposium on Nephritis at the Fifty-ninth Annual Session of the Illinois State Medical Society, Quincy, May 18, 1909.

of the blood as a carrier of toxic urinary pressor principles) would be an increase in its viscosity, i. e., in its friction. Viscosity determinations in cases of nephritis accompanied by high blood pressure have, however, revealed no constant deviation from the normal.

The heart might lead to increased blood pressure either by an increase of the systolic volume or by a shortening of the systole. The heart's rapidity is, however, not uniformly increased in the disorder under discussion, nor is there any evidence to show that more blood is expelled with each systole than normally.

The most rational explanation is narrowing of the arterial lumen, either in some of the large vessels or in many of the smaller ramifications of the arterial tree, or in both. Even slight narrowing of the arterial lumen, scil., slight arterial contraction would, according to well-known physical laws, promptly lead to a great increase of the general arterial pressure. I do not believe that this narrowing of the lumen is generally due to organic changes in the vessel walls, at least not in the beginning. It is probable that in many cases the changes are secondary to persistent high tension. Presumably we are dealing with a functional narrowing of the lumen, the result of an increased vasomotor tonus. Vasomotor instability is one of the most characteristic post-nephritic manifestations.

All these considerations concern only those forms of cardiovascular degeneration that occur consecutively to nephritis. There remain a large number of cardiovascular disorders in which blood pressure changes either precede or accompany the nephritis. Logically one can distinguish three possibilities, to-wit:

1. The cardiovascular changes precede the nephritis and cause the latter. This, I believe, is the sequence of events seen in true Bright's disease; for in many of these cases we witness high tension long before nephritic symptoms appear. The manifold causes of this high tension need not be discussed at this place. A persistent increase in the arterial pressure in this group of cases ultimately leads to degenerative changes, particularly in those organs of the body that are supplied by end arteries, viz., chiefly the brain, the retina and the kidneys; hence we not infrequently witness high tension accompanied by certain cerebral symptoms and a retinitis "albuminurica" in which the renal manifestations are at first completely absent or only develop at a late period of the disease.

2. The cardiovascular changes develop simultaneously with the nephritis. Here some agency must be operative that affects both the cardiovascular apparatus and the kidneys at the same time. To this category belong chiefly the cardiorenal disorders seen in chronic lead poisoning and, above all, in the so-called gouty diathesis.

3. The cardiovascular changes are manifestly of renal origin, consecutive to the nephritis and in all probability due to renal inadequacy with retention of toxic urinary pressor end products. This is the most common sequence of events and has been discussed above.

It will be seen how important it is from the standpoint of prognosis and of treatment to attempt in each case of nephritis complicated by cardiovascular disorders an interpretation of the sequence of events.

VALUE AND LIMITATION OF SALT-FREE DIET AND RESTRICTION OF FLUID IN NEPHRITIS.*

CHARLES SPENCER WILLIAMSON, B.S., M.D.
CHICAGO.

Since the pioneer researches of Widal and de Larniere, which demonstrated that sodium chlorid may, under certain conditions, be harmful to the nephritic, much attention has been paid to the influence of this substance in its relation to the various forms of Bright's disease. The conception of physiologic renal action now held recognizes as the most important factors (in addition to the variations of the general blood pressure and the local changes in blood pressure due to the peculiar structure of the glomeruli) the varying degrees of toxicity of the body fluids and permeability of the membranes. The body fluids, and first and foremost the blood, maintain under normal conditions a fairly constant cryoscopic condition. If there be excessive ingestion of molecules of, let us say, sodium chlorid, the excretory organs, if in a normal condition, eliminate the excess of molecules. This process, which is a stable and accurate one, becomes deranged and perverted under pathologic conditions of the eliminating organs, and of the kidneys in particular, should these become insufficient. The blood, in spite of the difficulty in getting rid by excretion of its excess molecules, makes a strong effort to preserve unchanged its normal molecular concentration, and to accomplish this throws into the tissue fluids the soluble bodies, such as sodium chlorid, which are productive of the increased concentration, thus rendering the tissue fluids, in comparison with the blood, hypertonic.

The proof that sodium chlorid is actually thus present in the tissue fluids is demonstrated by the fact that there is in certain diseases, especially pneumonia, a well-marked chlorid retention, and analyses of feces show that it is not eliminated by the intestine, nor yet is it present in the blood in excess. The obvious deduction is that it is retained in the interstitial fluids. This retention of sodium chlorid in the interstitial tissues produces an edema in proportion to the hypertonicity of the fluid. A considerable mass of evidence has accumulated to show that this does actually occur in a large number of cases of nephritis, and is not merely a theoretical possibility, although even here an occasional dissenting voice is heard. Confining ourselves to those cases of nephritis in which the edema is not of cardiac origin, we may agree with Strauss that the nephritis edemas may be grouped under two heads: first, those in which the edema is due to an inability on the part of the kidney to eliminate water itself; second, an edema due to the accumulation of sodium chlorid.

If we now enquire in what cases of nephritis the withdrawal of sodium chlorid will be likely to be beneficial, our thoughts naturally direct themselves to chronic diffuse nephritis, where the edemas are so persistent and so difficult to remove. There can be, I think, but little doubt that here especially the withdrawal of sodium chlorid, or, more properly speaking, its reduction to the lowest practicable amount, is of

* Read in a Symposium on Nephritis at the Fifty-ninth annual session of the Illinois Medical Society, May 18, 1909.

some value. Of this I have convinced myself in a number of cases, and systematic weighing of the patients, which has been practiced by many authors, has shown that the edema may be favorably influenced. The same thing applies with equal force to those cases of acute nephritis of whatever origin. In the cases of chronic interstitial nephritis we must not lose sight of the fact that edema is almost always of cardiac origin. In any event, the amount of edema attributable to the kidney directly is entirely significant and may here be neglected. Ambard and Beaujard (cited from Brouardel) believe that while chlorid retention is not frequently accompanied by edema in chronic atrophic nephritis it plays a rôle in the pathogenesis of both hypertension and polyuria.

The general consensus of opinion seems to be that chlorid retention does not occur to any considerable degree in the atrophic type, as it does in parenchymatous forms. The French writers, even very recent ones, recognizing the importance of the work of Widai and Javal, are still strongly impressed with the value of the milk diet. The *régime lacté* has become almost a fetish with them. The following statement may be taken as representing the position of the French authors:

To sum up, the régime of dechloridation finds its principal indication in edema. Are we then to substitute it for the *régime lacté* in all the cases of nephritis with dropsy, acute or chronic? We do not think so, because we must not forget the edema is not everything, and that it is of first importance in every nephritic to reduce to the minimum the ingestion of toxic substances with the aliment, and in this respect nothing compares with milk. Moreover, clinical experience shows that the régime of dechloridation does not apply to the cases of nephritis with renal insufficiency, but that it is the régime of choice for those edematous nephritics whose renal permeability is not too gravely compromised.

The same authors think that the great success which they consider they have had with the *régime lacté* in the treatment of edemas of Bright's disease is attributable to the poverty of milk in sodium chlorid (1.30 to 1.80 per litre). They consider that milk presents the three ideal qualities for nephritic diet, namely, a minimal toxicity, diuretic action and low chlorid value.

Attention has been so often called to the one-sidedness of the milk diet that it is unnecessary to criticize it here in detail. When we reflect that milk has a caloric value of approximately 700 per litre, so that, in order to obtain 2,100 calories per diem, 3 litres of milk, containing about 120 grammes of albumin, would be necessary, it is evident that this excessive amount of proteid and large quantity of water would overtax the kidney to an extent that would more than counterbalance any advantage which would accrue from the supposed low toxicity and low chlorid value of milk. It may not be denied that some cases of sub-chronic nephritis may do fairly well on a strictly milk diet, provided that the permeability of the kidneys for water is not too greatly impaired. We may even, for the sake of argument, grant that the low chlorid value of milk is the cause of such good results. It is, however, not difficult to construct a diet which shall be sufficiently low in chlorids, and which shall not contain such an excessive quantity of proteids and water, and yet have a sufficient caloric value.

One is impressed in the great majority of French authors and, indeed, in most of the writing on the subject of chronic nephritis, with the tendency of the writers to draw sweeping generalizations and to treat nephritis in general, and not a particular case of nephritis in a particular individual. I think it is a fair statement to say that the principal fault of our treatment of nephritis hitherto has been that in this disease, so variable in its clinical manifestations, strict individualization has not been considered of prime importance. The discussion as to the necessity or desirability of the withdrawal of chlorids is deprived of some of its importance by the fact that there are no very cogent reasons speaking against their withdrawal, or reduction to a minimum. In the contracted kidney, inasmuch as nephritic edema due to the retention of chlorids is a symptom of rare occurrence, the question of the withdrawal of chlorids seems to be of very subordinate interest.

In regard to the question of the administration of water in nephritis, the subject is distinctly more complicated, as more factors have to be taken into account. Furthermore, the necessity of obtaining a correct judgment in regard to the administration of water is imperative, because it is quite possible to bring about irreparable injury by a failure to recognize the indications for either its withdrawal or free administration. In this respect again there seems to be a strong tendency in the literature to dogmatize. But a few years ago the pendulum swung toward the copious administration of water in every case of nephritis, acute or chronic, irrespective of the condition of the heart, and quite irrespective of whether the patient showed the evidences of toxemia or not. Following the work of Oertel and von Noorden, the recent tendency has been to restrict the use of water, on the ground that by reason of its absorption into the circulation it increased the tension, thus adding to the work of the already overburdened heart. Scarcely no greater mistake can be made than to generalize broadly in regard to the giving of fluids, inasmuch as the differences are enormous between the acute and the chronic varieties of nephritis, and even in different cases of the separate forms the cases vary enormously.

Premising the remarks I am about to make with the statement of my profound conviction that the strictest individualization is necessary, in other words, that each individual case must be considered absolutely on its own merits, let us proceed to consider the underlying principles which should govern us in the light of our present knowledge in regard to fluid intake. The cases of acute nephritis naturally group themselves into first, those cases of marked oliguria approximating anuria; second, cases of moderate severity with moderate edema but with the kidneys still capable of eliminating fair amounts of water; third, the mild and convalescent cases.

Taking up the cases of the first group, the most acute cases, let us think of the pathology: an enlarged and swollen kidney, beefy red, with tense capsule, the glomeruli greatly distended with blood, so that the difference in pressure between the afferent and efferent artery of the tufts is much greater than normal. Here the indications would seem pretty

clear. The severe oliguria itself, and still more anuria, is the best testimony of the incapacity of the kidney to excrete water, and any attempt at the administration of considerable quantities of water is practically certain to result in water retention and consequent increase of edema. In a few such cases I have obtained the best results with strict starvation for three or even four days, followed later by an exceedingly limited diet, with a minimum amount of fluid, not to exceed a pint daily. It may be well said that one is on the horns of a dilemma. With uremia threatening, the free administration of water would be most desirable to aid in diluting the toxins, but for the absolute certainty that the kidneys would not excrete it. In my experience the *régime lacté*, which involves giving large quantities of water, is in such cases, to say the very least, most injudicious, and yet this régime, as has already been indicated, is almost universal. Georgeopulos found that in uranium-poisoned rabbits those died soonest with toxic symptoms (convulsions), which had had no water, while those that did have water developed no such convulsions. This might be interpreted as indicating the desirability of permitting water in per-acute cases, were it not for the uncertainty as to whether rabbits poisoned by uranium are properly comparable with the per-acute nephritis in man. The period of complete or nearly complete anuria lasts but a few days, as the patient either dies with uremic symptoms or else makes such improvement that he falls into the second group of cases.

In this second group we have moderate edema with uremic symptoms not prominent and the kidneys eliminating fair amounts of water. In this group a somewhat different plan should be followed. Bearing in mind that the chief danger lies in the sudden development of uremia, it becomes highly desirable to dilute the toxins circulating in the blood to as great a degree as is consistent with not giving the kidney more water than is possible for it to excrete. This does not mean that very large quantities of water or milk are to be given, but that from one to one and a half litres of milk, enriched with cream, with two or three hundred c.c. of water, may be administered. Such a mixture, with the addition of bread and the various carbohydrate cereals and butter, can be very easily made to cover all the caloric needs of the body. The strictest parallelism should be observed between the fluid intake and the output through the kidneys, the quantity being increased gradually as the secretion of urine increases, the pulse tension being carefully watched the while. Recently experimental evidence has been forthcoming which lends support to this plan of procedure, at least so far as the second group of cases is concerned. Mohr and Dapper found that in acute nephritis, as well as in the contracted kidney, limitation of the fluid under 1,250 c.c. produced a retention of nitrogenous substances and phosphoric acid, whereas when more than 1,500 c.c. were administered these were not seriously affected. Klaus, Hanssen and Gröndahl (quoted from Strauss) made a series of experiments in which they kept the caloric value of the food content, varying the amount of water. Their analyses were such as to lead them to the opinion that the restriction of water would impair the elimination of the products of metabolism. Strauss found that when he poisoned

rabbits with uranium those that lived longest had not only more interstitial fluid but also dropsy in the body cavities. He considers, therefore, that dropsy is in one sense a compensatory process, in that it diminishes the toxic action of the retained products of metabolism. He regards an uremia with dropsy as preferable to an uremia without dropsy. In the convalescence of cases of this sort where, as is pretty well known to clinicians, the diuresis is exceedingly free, or, in other words, where the kidney has regained its power, in a great measure, to excrete water, rational therapy dictates that water should be freely administered, without there being the least necessity, either theoretical or practical, for giving the excessive amounts of water sometimes prescribed.

The next group of cases to be considered are those acute or sub-acute cases which become chronic, or which, as in a number of instances that have come under my observation, last many months, so that the question of keeping up the nutrition becomes one of paramount importance. These cases, which are not so rare as commonly supposed, may be considered, from the standpoint of therapy, in the same light as cases of chronic parenchymatous nephritis. In my experience these cases are extremely difficult to handle satisfactorily, as the edema is apt to be of a high grade, difficult to get rid of, and at the same time not infrequently uremic symptoms, especially of the milder grades, are likely to appear at almost any moment. This applies particularly to the gastrointestinal uremic symptoms. The quantity of fluid to be permitted under these circumstances must be judged on broad clinical grounds. With a moderate excretion of urine, say five or six hundred c.c., and with the existence of edema and, at the same time, of uremic symptoms, scarcely any plan can be devised which is not open to criticism in some points. In my experience the factors which are most satisfactory in determining the amount of fluid to be allowed are the severity of the uremic symptoms, the pulse tension and the condition of the heart and arteries. Edema, unless excessive and involving the serous cavities, is, as compared with the symptoms just mentioned, of less grave import. Under these circumstances, when the pulse tension is not exceedingly high, the administration of rather small quantities of water at short intervals, being guided by the effect upon the tension, is probably the method which is open to the fewest objections. The edema is generally a true nephritic edema, and not due to failing cardiac compensation. That it is due in part to the inability of the kidney to excrete chlorids, and to the rejection of these into the interstitial tissues, has already been mentioned. Comparing systematically the intake of fluids with the daily quantity of urine and, when possible, by daily accurate weighing of the patient, we may, by feeling our way, determine the quantity of water which best suits the individual case. Acute exacerbations, often of a hemorrhagic type, are to be treated as an acute nephritis. Some of these cases gradually take on the type of the contracted kidney after having lasted a year or more, and may be treated as such.

In the genuine contracted kidney the conditions are so different that our governing principles must be greatly modified. Here we are con-

fronted by a disease which lasts often many years, the patient meanwhile in apparently robust health, yet in this interstitial form death ensues almost as often from cardiac failure and the accidents incident to high-pulse tension, as from the failure of the kidneys themselves. With the pulse tension almost invariably high, and arteries quite commonly stiff and rigid, the first question to be solved is as to the effect of the ingestion of water upon the heart. There can scarcely be a doubt that the enormous quantities of water frequently taken by patients, both at home and at health resorts, are often productive of cardiac breakdown. I have in mind two cases where middle-aged men, in whom the contracted kidney had been accidentally discovered, were made immeasurably worse by the advice of their physician to drink such large quantities of water as that the urine increased to about three times the previous quantity. Both cases were promptly benefited by a temporary reduction of the fluid intake to a minimum. Notwithstanding such cases as these, in which I think everyone of considerable experience would agree as to the proper course to pursue, I believe it is wrong to limit the fluids greatly in all cases of contracted kidney, especially in the light of the researches of Mohr and Dapper. My own plan of procedure has been as follows: If there are no evidences of decomposition and no considerable arteriosclerosis, water is given tentatively, estimating the pulse tension immediately before and at frequent intervals afterward. In this way it can be determined just how much can be taken without increasing the tension materially. In a moderate experience with this procedure, which coincides fairly well with that of Strauss, I have found that larger amounts of fluid could be given than one would, *a priori*, suppose. With uremia threatening and the heart still in good condition it would be quite proper to risk considerable quantities of fluid. The first sign of decompensation, either swelling and tenderness over the liver as result of its engorgement, or edema over the ankles, should be met by a prompt diminution in the amount of fluid, even down to almost none at all for twenty-four hours. It would seem hardly necessary to call attention to the fact that it is the height of folly to administer very large quantities of water, then to order sweat baths and purging to help eliminate it, the more so as we have no reliable evidence indicative of the power of the skin to excrete toxic substances. My experience with sweating procedures is that they are exceedingly weakening to the circulation and accomplish nothing in the way of diminishing the uremic symptoms. These points are familiar since von Noorden's work on the subject appeared.

To sum up, it would seem that the restriction of the total fluids, below 1,500 c.c., exclusive of the amount contained in the food, may be quite as injurious as the excessive quantities formerly prescribed. In my judgment, when the extensive edema finally occurs in the contracted kidney, it is to all intents and purposes a cardiac edema and should be treated primarily as such. Finally, the entire subject of the treatment of nephritis, and more particularly as it applies to the factors under discussion, is essentially one of individualization and not of glittering generalities. The firm ground of broad clinical experience must decide in each particular individual as to what is the appropriate therapy.

DISCUSSION ON THE PAPERS OF DRS. ELLIOTT, CROFTON AND WILLIAMSON.

Dr. James B. Herrick, of Chicago:—Mr. President: So many points have been touched on in these three papers—and in my judgment they are most excellent papers in every sense—that it would be impossible to discuss them all.

With regard to albuminuria and casts, and their significance, we should, as Dr. Elliott has said, look upon albumin and casts as always pathologic, but not necessarily as indicating disease of the kidney; or as indicating that the disease of the kidney, even though it be present, is serious. There is a tendency for us either to overestimate, as was done several years ago, or to underestimate the importance of a trace of albumin and the finding of a few casts in the urine, a tendency not infrequently seen to-day. We are perhaps inclined to overestimate their importance and condemn a man to Bright's disease when we find a trace of albumin or a few casts in the urine, overlooking the fact that these things may be merely significant of the approach of age. With the electric centrifuge casts are found in the urine of nearly every individual over the age of forty or forty-five. A trace of albumin may be found under various circumstances, which are really not of much importance. The only way we can rightly estimate such findings in the urine is, as Dr. Williamson says, to individualize, and not to dogmatize or estimate on the basis of any hard and fast rule. In other words, we must study the patient as a whole, and when we find albumin and casts in the urine we should look upon them as something that needs careful investigation. In one case we may find no other evidence of nephritis; no cardiovascular changes; no anemia; no retinal changes; nothing which can be looked upon as uremic intoxication; while in another case, with no more albumin, no greater number of casts, we may put a serious interpretation on it because we find deterioration of the blood, loss of weight, urinous odor to the breath, and definite cardiovascular changes.

Dr. Elliott referred to a point I think we often overlook, and that is the cyclic appearance of albumin in the urine during convalescence from acute nephritis. It is sometimes rather puzzling to find a patient with what resembles a cyclic albuminuria; he is too old, perhaps, for the ordinary albuminuria of adolescence, and we are at a loss to understand why we find albumin to-day and none to-morrow. Possibly in many of these cases, certainly in some, if we had the past history, we should find these patients just convalescing from an acute nephritis. The tendency has been of late for teachers to emphasize so strongly the occurrence of cardiovascular changes in nephritis that physicians and students look askance when a diagnosis of nephritis is made in which these changes are not marked. But there are many cases of nephritis in which cardiovascular changes do not occur. They are not made out during life nor are they found post-mortem.

Perhaps it is not necessary to emphasize Dr. Williamson's protest against a too strict adherence to a milk diet, and yet we find to-day very often the moment nephritis is diagnosed, no matter what the individual characteristics of the disease may be, the patient is at once put upon a milk diet, and nothing else is given for weeks, and, as I have known, in some cases, for months. There is certainly harm in this, and to feed a patient *ad nauseam* with milk three, four or six times a day, not only destroys the appetite, but the patient acquires a loathing for the milk, certain digestive disturbances are almost certain to arise, and we find oftentimes diarrhea, anorexia, with coated tongue, loss of weight, and anemia. We must very often violate the old rule and say to the patient, "What you need is milk, to be sure; but take a little something more; take cereals; take fruit, and you may even take red meat in moderation." That, of course, is looked upon with horror by most of the laity, because red meat has been regarded as absolutely poisonous for the nephritic. While milk is our sheet anchor in the way of diet in nephritis, it should not be used except with care, and should not be used to the exclusion of other foods.

There is a great deal that can be said on the subject of methods of reducing blood pressure. Dr. Crofton brought out a good point, that in cases of nephritis we sometimes desire to maintain a high blood pressure. This assumes, in a cer-

tain sense, that high blood pressure is compensatory. We are too often inclined, the moment we get hold of a case of chronic nephritis and find a blood pressure of 180 or 200, to resort to measures that shall reduce the blood pressure. Oftentimes that is not necessary. At other times it is wise to do it; a terrific splitting headache or dizziness and vomiting may disappear under nitrites or nitroglycerin, or by some measures which will reduce blood pressure. But in some instances, particularly in those in which so-called cardiac asthma has begun to make its appearance, and in which we have reason to think there is beginning paroxysmal failure of compensation on part of the heart, we get far better results by giving remedies which really raise blood pressure than we do by measures that lower it. And here, again, is an illustration of what Dr. Williamson says, namely, we must individualize in our treatment of nephritis.

Just a word regarding one or two ways in which blood pressure can be reduced. The one that seems to me of extreme value in many instances is that by rest and a very sharp restriction as to the amount, as well as quality, of food. We often find it practically impossible to reduce blood pressure by means of remedial agents, but if we can put the patient to bed, see that the bowels are kept open, and keep him upon a diet whereby he is almost starved, we may find that not only is he symptomatically better, but by measuring the blood pressure we find it has been actually lowered. Quite remarkable improvement has been brought about by quacks or semi-quacks by employing some such treatment. The secret of such success is that they practically starve their patients. They do not overload the blood vessels. The patient is quiet, elimination is properly carried on, no salt goes into the food, and at times there is improvement that is little short of startling.

If time permitted, one might speak of the value of morphin in some of these cases, and of the great good in the way of temporary relief to be obtained from blood-letting. A good, liberal bleeding will oftentimes lower the pulse for the time being, and it may be repeated at long intervals, and oftentimes with benefit. I am sure, too, that in some cases of chronic interstitial nephritis, particularly those accompanied by marked arteriosclerotic changes, where the arteriosclerosis has been primary and the renal changes secondary, I have seen most excellent results from the use of potassium iodid, given in small doses, and continued for a long period of time. And yet, with all that has been said, I think we should conclude that the last word has not yet been uttered, either as to the significance of albumin and casts in the urine or as to the cause of cardiovascular changes, or as to the best method of treatment. We all of us formulate certain theories in our studies and in our discussions, but when we put them into practice we modify them by our individual experiences; and we have, as we go on in practice, a mingling of that which is theoretical and of that which is practical, and when we try to formulate our ideas into definite rules for the guidance of others we find these rules are not quite as accurate as we wished they might be, and that there is a great deal yet to be learned about nephritis, both theoretically and practically.

Dr. Everett J. Brown, of Decatur: These papers are interesting to general practitioners. A few years ago von Noorden made a statement to this effect, that there were three elements which a diseased kidney could not eliminate, namely, urea, salt, and water. This statement was so iconoclastic and so different from what we had been taught with regard to flooding the system with water in nephritis that it set us all to thinking, and I have read all I could upon this subject and have endeavored to carry out in my practice a great many of the points I learned from von Noorden. Of course, a milk diet is unpleasant, and von Noorden has endeavored, by means of adding one-third cream to his milk mixture, to lessen the amount of water, at the same time affording enough nutrition. I have under observation a remarkable case of chronic parenchymatous nephritis, the patient having come to me with albuminuric retinitis of such marked degree that the amblyopia was almost complete. He could not read newspapers and could barely see to walk around the house. My prognosis was unfavorable. I put him under treatment with a milk, vegetable and fruit diet. I told him he could eat

anything that came out of the ground. I caused a two-thirds reduction in his salt intake. I was surprised at the ease with which he took this diet, which reduced the salt, because it was meat that required salt, and was surprised to notice the remarkable improvement in his eyesight. Now he is able to read the morning papers, and walks without difficulty. I regard this improvement, however, as being temporary. We sometimes are astonished at the length of time our nephritics live. I recall the case of a man who had chronic parenchymatous nephritis, eight years ago, who had universal anasarca, but who is now well and is running a store. He ascribes his cure to a six years' course of urotropin, of which he took seven and a half grains three times a day for that period. I do not believe the urotropin had much to do with effecting the improvement, but he took the treatment recommended for him, and the result has been remarkable in regard to the length of time the man has lived.

Dr. H. J. Stewart, of Chicago:—I wish to speak of one point in connection with these papers, namely, of indican in the urine. I believe in cases of chronic interstitial nephritis more attention should be paid to the action of indican in the urine than formerly. We all know that indican is the result of an intestinal putrefaction, and it occurs to me that probably its presence means an increasing toxemia putting an extra load or irritating these already sick kidneys and may be a large factor in causing those dreadful symptoms or conditions such as uremia or retinitis, and even going farther back. I question if it does not have a far greater part than we have heretofore thought in causing the original nephritis. I have noticed that none of the gentlemen taking part in this symposium have touched on this matter at all. I was called to see a case recently; a woman, aged 25 years, who discovered that her eyesight had almost gone over night. I immediately examined her urine and found only the slightest trace of albumin, no casts, but an abundance of indican. The clinical findings led me to believe that this indican appearing in her urine, the result of an intestinal putrefaction, must be a factor in her eye conditions, therefore, I immediately set about removing the cause of this reaction and she improved very much the second day and has continued to improve every day since. I would like to hear what views the gentlemen have on this condition, as to whether they think it plays as important a part as I think it does or if it plays any part at all in nephritis.

Dr. A. Belcham Keyes, of Chicago:—I have listened to these papers with extreme pleasure. In work upon the peritoneum one often has cases of peritonitis in which there is an enormous absorption of toxins from the peritoneal cavity. We are forced to try to maintain localization of this peritonitic process by opiates after operation and drainage which stop peristalsis and elimination via the intestines. In such cases it is very necessary that the kidneys carry on their function of elimination to the utmost. Very many times we find both albumin and casts in the urine from the autointoxication. I feel that there is a dearth of data to guide us as to what we are to feed such patients in order to get the best kidney excretion. For years I have used peptonized milk, which was not mentioned by the essayist. I would like to know Dr. Williamson's opinion of this. In some of our cases the casts and albuminuria may have existed for a long period or they may be purely febrile and transitory. In either case, as we cannot eliminate by the bowels, all of the toxins must be eliminated by the kidneys or skin, making it a question of importance to every operator to give his best attention to the feeding of such cases.

Dr. Robert H. Babcock, of Chicago:—There are three points of an empirical nature to which I should like to refer in this matter of the treatment of edema in chronic nephritis. 1. If any one has seen many cases with edema he knows that some of the edemas are hard and some are soft. Although one should estimate the volume of chlorids in the urine in all cases of nephritis or of cardiac disease showing dropsy, still in a purely empirical or rough clinical fashion considerable information may be obtained from determining this character of the edema as to the value of restricting or entirely eliminating the salt from the dietary. If the edema is soft, the restriction or total deprivation of salt from the

food will usually prove most effective in its removal. In the hard edemas, on the other hand, a dechloridation of the diet is, in my experience, of small value. 2. In many cases of chronic nephritis with perhaps but slight edema we see patients who suffer a good deal from dyspnea, a sort of paroxysmal dyspnea. In some of them the heart does not seem much at fault, and it is sometimes difficult to determine the cause of the dyspnea, unless it be looked upon as toxic or due to retention of some product that should be eliminated or possibly to an internal edema, as, for instance, of the lung tissue. In some of these cases it has been my experience that a salt-free diet is most happy in its effect, that is, in relieving the dyspnea. 3. In any case of chronic nephritis in which edema is not present I believe it is a good plan in their management to teach the patients that they must cut down their intake of salt lest the time may come when the retention of salt in the tissues will occasion edema.

Dr. Arthur R. Elliott, of Chicago:—Dr. Herrick has referred to the albuminuria of convalescence. That is a very interesting and inconstant form of albuminuria, which I have quite often observed. It has seemed to me in certain cases that it was of the same pathogenesis as the albuminuria of adolescence or so-called orthostatic albuminuria, and is due to a lack of vasomotor control of the glomerular circulation resulting from the long recumbency of the preceding illness. With regard to the control of high blood pressure, I regret that Dr. Preble is not here to-day, because I think this is one of the live subjects in the therapy or treatment of Bright's disease. Very radically different views obtain as to the desirability of tampering with the element of high blood pressure. There are those who hold that high blood pressure is a compensatory mechanism, and would leave it alone except in the presence of definite indications; while there are others who advocate the employment of vasodilator methods directed towards the control of the high blood pressure. Of the physiologic therapy we employ in cases of Bright's disease for controlling high blood pressure, such as diet, rest, change of scene, change of environment, hygienic treatment generally, there is perhaps no one thing so useful as the morning purge. There comes up the question of whether we shall employ vasodilators, and I am one of those who believe in the employment of vasodilator medication under certain conditions. I believe in the employment of vasodilator medication we should be guided by certain definite rules. If the blood pressure reaches above two hundred I give vasodilators, as a rule I do not always succeed in lowering blood pressure, but that is not necessary to benefit the patient's symptoms. Your patient may often experience great subjective benefit from the employment of vasodilators without the instrument showing the slightest variation in the downward direction. Occasionally the employment of vasodilators causes an increase in the blood pressure, although there is an improvement in the patient's well-being. The presence of apoplexy prodromes, headaches, dizziness, precordial distress, anginoid symptoms, etc., point to the necessity for diminution of blood pressure when it is high. There are certain cases of contracted kidney which can be greatly benefited throughout their course by the use of vasodilator medication.

Dr. Williamson (closing the discussion):—In regard to the question proposed by Dr. Keyes concerning what may be done in the way of feeding patients in whom, after operative conditions on the peritoneum, there is absorption of toxic material from that membrane, and, at the same time, it is imperative to maintain the bowels in a state of absolute rest by giving them opiates, I am not at all sure that I am competent to answer the question, not being a surgeon. But it occurs to me, the wisest way would be to limit strictly the ingestion of food, to give the smallest amount of food consistent with the maintenance of an adequate degree of nourishment, and the exhibition of small quantities of water at frequent intervals. One should limit the food to such quantities as will put no additional weight on the kidneys. Such a condition of affairs would only last a few days, and the cutting off of food would not be a serious matter. That would be my thought in regard to the matter.

FRACTURE OF PELVIS AND RUPTURE OF BLADDER.*

E. K. LOCKWOOD, M.D.

VIRIDEN.

I have selected this subject, "Fracture of Pelvis and Rupture of Bladder," because it is a very common injury through the central and southern part of this state, where there are so many coal mines. This injury occurs usually among coal miners, and especially among drivers. I have seen four cases in the last four years in a town that has from fifteen hundred to two thousand miners. This injury occurs usually from being caught between coal cars and squeezed, or squeezed and rolled, but it may be caused by any force strong enough that is applied to the pelvis. One of two things will occur, depending on the age. Those under 20 usually have separation of the symphysis pubis with over-riding of the bones; also separation of the sacro-iliac articulation and rupture of the bladder; while those over 20 have a green stick fracture of the ascending ramus of the ischium or descending ramus of the pubis with rupture of the bladder. This rupture of the bladder is, in a great majority of cases, extra-peritoneal and the rent is in the region of the trigone. The symptoms and signs of this injury are classical, and I will give them in the order in which they will be observed and according to their importance. Shock is always present and it varies in degree owing to the extent of injury. In Case 1 it was profound, while in Case 4 it was slight. Constant desire to urinate, with inability to pass even a few drops, is always present. On passing the catheter you succeed in drawing off a few ounces of bloody urine. It may be nearly pure blood. By examination per rectum you will feel that there is a difference in contour on the two sides of the pelvis, the side of the fracture feeling fuller than the corresponding side.

I think with these symptoms and signs present one can feel positive of fracture of the pelvis with injury to the bladder, but after twelve to twenty-four hours there will be a dulness in the flanks, due to extravasation of urine, which may extend as high as the umbilicus, also ecchymosis of the scrotum and perineum.

The mortality due to such injuries will vary according to the extent of injury and the treatment. Von Bergman gives 75 per cent. mortality in cases that were not operated on, while cases operated on had a mortality of 50 per cent. In our four cases those that were operated on lived; recoveries, 100 per cent.; while those cases we did not operate on died; mortality, 100 per cent.

The treatment is operative: suprapubic incision down to the bladder. Be careful not to open the peritoneal cavity and if possible repair rent in bladder, but if impossible open the bladder and place in drainage. (In Case 3 the patient's condition was so desperate that we placed drainage in the region of the bladder rent and packed off Retzius' space). Retention catheter is inserted for a few days, and the question will come up,

* Read at the Fifty-ninth annual meeting of the Illinois State Medical Society, Quincy, May 19, 1909.

Shall we wait until shock is over? I think not. Shock continues as long as urine is extravasated into the tissues, probably due to stretching of nerves, and we have noticed that within half an hour before operating the patient began to recover from shock. *Asepsis, of course, is very important.*

CASE 1.—J. V., male, aged about 28 years, caught between cars at 7 a. m. Seen at 8 a. m. He was collapsed; pulse, 150; bruise on back. Passed catheter and drew one pint of bloody urine; injected boric acid solution. All returned. Frequent desire to urinate, with inability to pass even a few drops. A pear-shaped tumor in hypogastric region the size of a child's head; abdominal muscles rigid; pain below umbilicus of lancinating character. Patient died at 8 p. m. Post-mortem: Rupture of the bladder the size of the palm of the hand in the region of the trigone with fracture of the ascending ramus of ischium on both sides; considerable urine in Retzius' space; large hematoma in hypogastric region.

CASE 2.—Johnson, a driver, male, aged 17 years; squeezed between cars. Considerable shock; constant desire to urinate but could not. Passed catheter and drew off bloody urine. In two or three days urine was clear; complained of pain in region of bladder; condition grew worse. Patient died on the fourth day. Post-mortem: Separation of pubic articulation with over-riding; some extravasation of urine as high as umbilicus; rupture of bladder in region of trigone. Assistant caught one side of ramus of pubic and myself the opposite side, but could not reduce fracture or dislocation; then tried to pry between articular end of pubic bone with no better result.

CASE 3.—February 13, 1908, E. K., driver, male, aged 17 years; injured about 2 p. m.; kicked by a mule; does not know what happened. Saw him at 5 p. m.; he complained of pain over bladder and in back; constant desire to urinate, but not able to pass any urine; said that was all that bothered him; shock extreme; abdominal muscles tense and boardy; dullness over region of bladder shading into resonance above; depression over pubic bone on left as compared to right. Passed catheter and drew off two ounces of bloody urine.

Operation 23 hours later. Condition at time was alarming; shock still present; pulse 130 and weak. Incision over region of bladder; about one quart of urine escaped; pubis articulation had separated and was riding under bone of right side. Assistant caught ramus of pubis on one side and operator caught opposite, but could not reduce dislocation. Rent in bladder was in region of trigone; could not sew same on account of location, so placed in drainage tube and packed Retzius' space; placed in retention catheter. Patient recovered. Present condition July 28th; left foot turns out and he has a limp, but no trouble with bladder in any way. Condition is good.

CASE 4.—R., Italian, male, aged 34 years, squeezed between cars; shock, and constant desire to urinate but could not pass any urine. Examination per rectum: Could feel a distinct fulness on left side of pelvic bone in region of ramus of ischium. We took patient to hospital; operation 7 p. m.; suprapubic cystotomy; patient at time was suffering from shock, but within thirty minutes after operation began to recover from shock. Placed in drainage; could feel fracture of ramus of ischium. Present condition of the patient: left foot turns out, bladder wound healed. He also had rupture of the deep urethra which we repaired about three weeks later. I am indebted to my friends, Drs. Morgan and Matley, for permission to report Cases 2 and 4.

DISCUSSION ON THE PAPERS OF DRs. RYAN, LOCKWOOD AND FULLER.

Dr. Thomas J. Sullivan, of Chicago:—I am sorry I was not present to hear the first paper presented by Dr. Ryan. However, I heard the other two papers. Fracture of the pelvis is an injury that is not infrequently received by men who are engaged in mining and other occupations, where there is danger of crushing of

the pelvis; also when a man riding horseback is thrown and rolled beneath by the horse, fracture of the pelvis almost invariably occurs. In the short time at my disposal it is impossible to go into these points fully. In all supposed injuries of the pelvis the first and necessary thing to do is to pass a catheter; being unable to do so and finding blood passing from the urethra, there is rupture of the urethra to begin with, and possibly rupture of the bladder. That should be determined as soon as possible after the injury, disregarding shock that has very little to do with some of the cases. If the case does not show shock, at the first signs of blood pass the catheter, and prepare for operation, and this operation consists essentially in determining the nature of the injury. If possible, have a skiagraph made. Make an incision in the median line down to the urethra; or, first, if there is a possible chance of rupture of the bladder, make a suprapubic incision which will determine the conditions of the bladder. Also, the pelvis can be palpated through that incision without opening into the peritoneal cavity. The next incision should be made down through the median line to the urethra. Determine the location of the urethra, open in, reach the bladder by the median incision and provide drainage. There is great danger of urinary extravasation and all the terrible things that follow that. If drainage is provided for in a proper manner, there is very little danger to the patient. The cases in which recovery ensues owe it to early recognition of the injury and primarily to early operation. If these cases are not operated on they all die. Fracture of the pelvis is interesting, inasmuch as it shows what an important part the anatomy of the hip joint plays in reducing this dislocation. Many years ago Bigelow pointed out the very great and essential part the Y-ligament plays in dislocations of the hip, stating that the Y-ligament alone is responsible for position and reduction of the dislocated hip, and this fracture and dislocation are, in a great measure, a dislocation of the hip. The writer in this case failed to reduce his dislocation until he had taken into consideration the Y-ligament, that is, the thickened anterior portion of the capsule, and he only succeeded when he brought the leg up to a right angle and made adduction, the very thing Bigelow pointed out as absolutely necessary to reduce a dislocation of the hip. In that case he succeeded when he made flexion and adduction, and then traction. It would seem as though it plays an important part just as it does in the ordinary dislocations.

Dr. Arthur Dean Bevan, of Chicago:—I should like very briefly, in connection with the subject of fracture of the pelvis, with injury of the bladder, to refer to a case which I have had recently in my service, which, I think, presented several points of great interest from the standpoint of cure in some of these difficult cases. A man was crushed about fourteen months before I saw him. He had a fracture of the pelvis which tore through the urethra and into the rectum. He was in competent hands in a small country town, where there was no hospital with modern facilities however, and he was kept there for fourteen months. The injury was one in which there was a tear or about two inches in the rectum at the time of the original injury, with the urethra completely separated just in front of the prostate from the triangular ligament, so that when one passed a sound into the bladder, and then put a finger into the rectum, he could feel the sound for about two inches in the rectum. He was kept alive practically by having suprapubic drainage and a tube introduced into the urethra. When I saw him he had these conditions: A suprapubic fistula; a stone in the bladder; an opening leading from the urethra into the rectum. He had four fistulous tracts leading from the injury of the urethra and the rectum into the perineum, and one under the thigh. I want especially to emphasize the method of treating these fistulae between the urethra and the rectum or between the bladder and the rectum. (Here Dr. Bevan drew a diagram showing the operation he had done in this case.) I do not know that this exact method was ever used before. For instance, this is the sacrum (indicating), and here is the symphysis. We had to deal with such a problem as this: Here is the rectum, here is the bladder, the

prostate is at this point (indicating), and the urethra is here. Of course, this is crudely diagrammatic. We had here a large opening leading from the urethra into the rectum at that point (illustrating). The question was how to cure that opening and how to close that fistula? The method employed was a good deal the same as in inverting the stump of the appendix. A dissection was made around this opening, so that a cuff was turned into the torn urethra, after lifting up this flap, with pursestring suture. We could then turn our flap into the urethra by the pursestring suture in this way (indicating); that left the rectum at this point, which was slid over and brought down to the margin of the anus, this point being brought down and covered in in that way. The same method was utilized in curing a fistula in the pendulous urethra. For instance, in the pendulous urethra there was a long fistula running in front of the injury. This was dissected out, just like a pipe-stem, from the surrounding tissue, and turned in as we would invaginate the appendix, the major portion being cut off. In two such cases we had the satisfaction of having primary union. I make this brief statement to report that little point in technic in curing this fistula after fractures of the pelvis. We established drainage through the suprapubic opening. There was a large stone, which we removed through a suprapubic opening.

Dr. Collins:—What suture material was used?

Dr. Bevan:—Catgut, all the sutures being buried.

Dr. J. L. Wiggins, of East St. Louis:—I can heartily coincide with the deductions of Dr. Sullivan relative to there being practically no mortality in these cases conditional upon the early interference. That has been my experience in some four or five cases which have come to my service. And there is another surprising feature about it, and that is, it does not require men of extraordinary skill or knowledge to get beneficial results in these cases, provided they are taken early. A lesson I have learned from my own experience in these cases is that in every instance it is much better not to depend upon the perineal incision. In most of these cases in which there is rupture of the bladder we often find there is also rupture of the urethra, and if we make a suprapubic incision the conditions are much better handled. It is much safer in every respect; there is much less damage done to the soft parts, with possibly one-half less work, or with one-half of the groping in the dark to locate the injuries, and the results are always better. It is the experience of the majority of operators who have handled this class of cases that an early operation, almost an immediate operation, irrespective of shock, dependent upon wide injury, gives the best results.

Dr. Fuller (closing the discussion on his part):—I have nothing further to add except to reply to one point made in the discussion about immediate operation on patients who are in shock. If I understood one of the previous speakers he said he would operate immediately regardless of the degree of shock. To operate on any patient in great or even moderate shock is to lessen his chances of recovery. If his depression or lowered vital state is due to hemorrhage, a condition sometimes regarded as shock, then the indications are different, and radical treatment is called for. In true shock, however, measures to combat this condition are imperative and should always be instituted before any operation is performed.

Dr. Lockwood (closing the discussion):—I would like to say in reference to the remarks made by Dr. Fuller, in Case 3, the patient was in extreme shock, and we waited fully eighteen hours to see if he would recover from the shock. But he seemed to grow worse instead of better; then we operated, and the man in one hour recovered from shock. In Case 4 we only waited three or four hours, and one hour after operation the patient had recovered from shock due to the injury.

THE DIAGNOSIS AND TREATMENT OF STONE IN THE URETER.*

ARTHUR DEAN BEVAN, M.D.
CHICAGO

AND

HERMAN L. KRETSCHMER, M.D.
CHICAGO.

This paper will be limited to the consideration of the *x-ray* diagnosis and the treatment of stone in the ureter. Diagnosis being so important in this group of cases, it is but natural to find various methods of diagnosis described in the literature; these various methods are very frequently referred to by those writing on this subject; still the number of cases reported in which an exact and positive diagnosis has been made with the aid of one of these methods are very few. It appears justifiable, therefore, to report the below mentioned case. The subject of diagnosis of stone in the ureter must naturally be considered under two separate headings, namely, the probable diagnosis and the positive diagnosis. By a probable diagnosis is meant a diagnosis based upon the history as elicited from the patient, together with the physical findings and the result of repeated and careful urinary examinations. This diagnosis may be made with a certain feeling of surety when the patient gives a definite history of having had a ureteral colic, if either blood or pus, or perhaps both, are found in the urine, together with pain or tenderness along the course of the ureter upon palpation. The question of diagnosis is a much more difficult problem in those cases giving a history of vague and indefinite pains in the abdomen, instead of a typical history of renal or ureteral colic, and, added to this, indistinct urinary findings, as may be the case where the patient presents himself for diagnosis in the free interval; that is, between two attacks of colic. In this class of cases an *x-ray* picture should be taken, not only of the kidney on the suspected side, but of the entire ureter on that side, as well as of the kidney and ureter on the opposite side, so as to be perfectly familiar with the opposite side. After the patient has had a renal colic, the stone may have started on its journey down the ureter, so that an *x-ray* of the kidney and upper ureter would be negative, and the stone might easily be overlooked on account of its low position in the ureter, below the brim of the pelvis. In these doubtful cases an *x-ray* picture may clear up the entire question of diagnosis, and, on the other hand, it not infrequently happens that the Roentgenogram fails to be of any aid whatsoever, for it not infrequently may show the presence of indefinite shadows in the pelvis, apparently along the course of the ureter, thereby tending to obscure the diagnosis still more.

It is not the cases in which a large stone or stones are present that give rise to difficulties in diagnosis, as, for example, the case of Federoff,

* Read at the Fifty-ninth annual session of the Illinois State Medical Society, Quincy, May 18, 1909.

who was able to palpate the entire ureter filled with calculi, before the operation; but it is that group of cases giving an indefinite history of pain, etc., and in which either a small stone is present that cannot be palpated or in those cases showing an "indefinite shadow" on the *x*-ray plate. These so-called "indefinite shadows" were the cause of much speculation in the earlier operative treatment of ureteral stone, so that not infrequently, after having obtained an *x*-ray picture showing a pelvic shadow, it was looked upon as a stone in the ureter and its operative removal was undertaken. In some of these cases a stone, to be sure, was found and removed. On the other hand, however, and in a fair number of cases, it happened that no stone was found at the time of operation. It was then that attention was drawn to the fact that these shadows were produced by bodies outside of the ureter. (Extra-ureteral origin of the shadows). These pelvic shadows are seen more and more frequently, due on the one hand to an increasing number of pelvic pictures that are being taken, as well as to the improved technic in taking the pictures, so that there are undoubtedly a good many of these shadows shown on the plates that were not recognized formerly. In seeking an explanation for these pelvic shadows we must bear in mind the many anatomic structures that are found in the pelvis, and hence it is but natural to expect that more than one explanation is possible for them.

In the following case the first *x*-ray picture showed the presence of a shadow that suggested the possibility of a stone in the ureter. After passing a ureteral catheter armed with lead wire, a second *x*-ray picture was taken, which showed the presence of the stone within the lumen of the ureter. This was verified by the operative removal of the stone by Dr. Bevan.

The patient, M. A., case No. 50,527, a male, aged 52 years, entered the service of Dr. Arthur Dean Bevan at the Presbyterian Hospital December 5, 1908.

Present Illness.—Patient states that four years ago he first noticed disturbances in micturition. At this time he was unable to void urine for a long time, and at other times he would have attacks of frequency of urination; during these attacks of frequency of urination he would pass very small amounts of urine. About the same time patient had severe abdominal pain in the left lower quadrant of the abdomen. The pain would last for three to four hours and then pass away very suddenly. Patient does not remember whether or not he passed large quantities of urine after these attacks of pain. During the attacks of pain he would feel nauseated, but he never vomited. Patient says that his urine was turbid during these attacks. For the past eleven months the patient has felt a pain or discomfort in the lower left quadrant of the abdomen, and when the pain was severe it would radiate toward the kidney and the bladder. At irregular periods he would have exacerbations similar to his first attack. The pain has been relieved by the use of some anodyne. The patient has not lost weight and has been able to work most of the time.

Previous History.—Negative.

Family History.—Negative.

Habits.—Smokes and drinks moderately. Appetite good. Bowels regular, except when he has these attacks of pain. Weighs about 150 pounds.

Examination.—Patient walked into the hospital in apparently good health—not emaciated. Color fair. Head, neck and scalp, negative; glands, not palpable; thyroid, not enlarged; tongue, not coated; teeth, fair; eyes, pupils react to light and

accommodation and they are equally dilated. Chest: Ribs prominent; expansion good; lungs, negative; heart, normal borders, no abnormal tones. Abdomen: The abdominal walls are very thick. No tenderness over kidneys or bladder. Some tenderness may be elicited in the left lower quadrant of the abdomen upon firm pressure, which is not very severe or localized to any special point. The rectal examination was negative. Blood examination: Hemoglobin, 93 per cent.; leucocytes, 8,350. Urinary report: Color, red; physical condition, turbid; specific gravity, 1.020; sediment, no casts found; epithelial cells present; leucocytes present; erythrocytes present. Cystoscopic examination: This shows a slight amount of injection of the vessels of the trigone. Internal urethral orifice is normal. Both ureteral orifices slit-like. Ureteral catheterization: On account of the location of the pain on the left side and owing to the fact that the suspicious shadow was found on the left side, it was decided to catheterize the left ureter only. For this purpose a ureteral catheter armed with fuse wire was used and passed into the pelvis of the kidney. At this place it might be well to consider the question of obstruction offered to the ureteral catheter by the stone. The catheter passed freely up into the pelvis of the kidney and no impression of obstruction to the catheter was noticed during its introduction.¹

X-ray Examination.—This was made by Dr. Hollis Potter, and verifies the probable diagnosis of stone, made before the introduction of the lead wire. Upon examining the skiagram (Fig. 1) the entire course of the ureter can be seen, and in its course the shadow produced by the stone. Almost the entire shadow produced by the stone can be seen lying internal to the shadow of the wire. *The entire procedure was carried out during Dr. Bevan's clinic at Rush Medical College, so that after the catheter was passed and the picture taken and developed, the patient was prepared for operation in the clinic.*

Operation (Dr. Arthur Dean Bevan).—Ether anesthesia, drop method. The extraperitoneal route was the one used to approach the ureter, using the same incision as that used in ligating the common iliac artery. In this case the lead catheter was not removed after the x-ray was taken, so that the lead catheter may be looked upon as an aid in locating the ureter and, secondly, the lead catheter allowed the ureter to be brought well up into the field of operation and of its being more easily held there with small hooks, making the removal of the stone (see Fig. 2, exact size of stone) much easier than if one is working in the bottom of a deep wound, as would have been the case in this patient on account of the thick abdominal wall. The ureter was incised over the stone and the stone removed; the incision in the ureter was closed with a few catgut sutures. No fistula followed the operation. A small cigarette drain was placed down to the ureter. The patient made an uninterrupted recovery, leaving the hospital at the end of two weeks.

The most important question to be determined in these cases showing an indefinite shadow in the pelvis is to determine the relation that exists between the shadow and the lumen of the ureter. In other words, we must determine whether the shadow has an intraureteral or extraureteral origin. This fact may be determined in one of three ways: 1. The passage of an ordinary ureteral catheter armed with "fuse wire." 2. The

1. Not infrequently the statement is made that during the course of an operation on the kidney or ureter, a probe or catheter should be passed through the ureter into the bladder to detect stones in the ureter should they be present. This procedure, if positive, may be of aid in recognizing the presence of a stone or an obstruction; if negative, however, it does not allow of one's positively excluding stones in the ureter, as the stone may offer no obstruction to the passage of the catheter whatsoever, as was the case in this patient, to which fact attention has already been called. The factors leading to error in diagnosis are not always the same in each individual case. The catheter may, for example, catch in a fold of mucosa and thereby produce a false impression of obstruction. On the other hand, the stone may lodge in a pocket of mucosa which has become swollen and edematous, so that the catheter more or less readily glides over the stone.

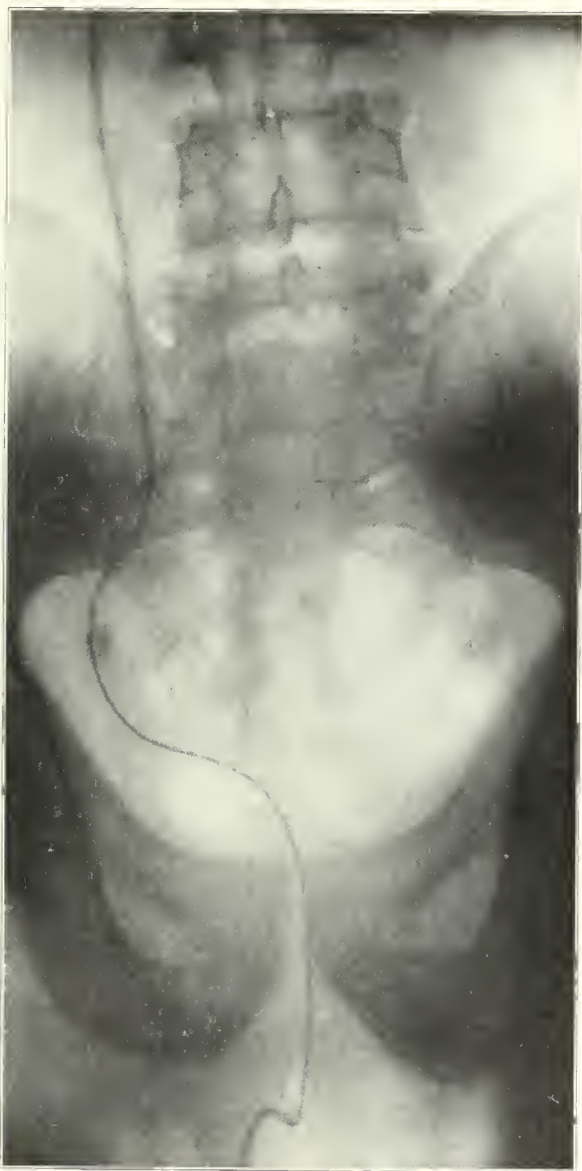


Figure 1.

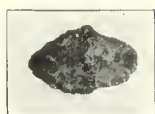


Figure 2.



use of cinnabar catheters. 3. Instead of catheters shadowgraph bougies may be used. Needless to say that no matter which of these methods has been resorted to, another *x-ray* must be taken, or better perhaps, two pictures, one in the anterior-posterior position and a second with the patient partly on the side. One of the most important conditions to be fulfilled is that, no matter which method is used, a good, clear, distinct shadow must be obtained on the *x-ray* plate.

R. Goebell has suggested the addition of cinnabar to the varnish used in coating the ureteral catheter and after the introduction of the catheter to take an *x-ray* picture. It is doubtful whether the picture obtained by this method would be as clear and distinct as is the picture obtained in this case, in which a ureteral catheter armed with fuse wire was used. Shadowgraph bougies are used by Fenwick, and he calls attention to the fact that a marked difference exists in the different kinds that are on the market, in the intensity of their shadow, many of them being exceedingly unreliable.

In 1901 Schmidt and Kolischer suggested the use of lead wire combined with a simultaneous skiagraph, and it is the method that was used in this case. The fuse wire is that used by electricians and can be obtained in any electrical supply depot. Among some of the advantages of this method may be mentioned the very intense shadow produced by the fuse wire. This is a most important factor in determining the relationship existing between the lumen of the ureter and the suspicious shadow. The wire is soft and pliable, and therefore it readily follows the natural course of the ureter without causing any deviation in its anatomical position. This point is illustrated by a reference to Figure 1, which shows a distinct curve in the catheter in that part corresponding to the urethra, and undoubtedly corresponds to the bulbous urethra. The wire can readily be sterilized² and can easily be introduced into the lumen of the catheter.

Objections to this method may be offered by those in favor of using the cinnabar catheter, by the use of which the lumen of the catheter is not obstructed, and hence no temporary obstruction to the flow of urine is present. It is a well-known fact that a certain amount of urine flows down the ureter along the side of the catheter, and hence a complete blocking of the urinary flow can hardly take place. This patient never complained of a particle of pain at any time during the entire examination, so that this argument does not hold in this particular case.

"The simplicity of this method, as well as its exactness, is illustrated by the above-mentioned case, in which the entire examination of the patient, including cystoscopy and ureteral catheterization, the x-ray examination and the operative removal of the stone, was carried out during the course of one of Dr. Bevan's regular college clinics."

It is not the object of this paper to consider the use of wax-tipped catheters, as devised by H. Kelly, nor the ureteral catheter recently described by Cunninham, Jr., of Boston.

2. It is of the greatest importance that the rules of surgical asepsis and antisepsis be carried out in this work, just exactly the same as in any other manipulation on the urinary tract: it is necessary, therefore, to have methods at our command that can comply with these demands.

This case can be looked upon as a positive case, since the intraureteral origin of the shadow was demonstrated before operation, this fact being proven by the operative removal of the stone. As negative cases may be named those cases giving shadows leading to a probable diagnosis of stone in the ureter, but in which the shadow was of extraureteral origin, as proven either by the use of lead-wire catheters or by operation. Similar positive cases have been reported by Albers-Schoenberg and by Kuemmell and Graff. In Sick's case, reported by Albers-Schoenberg, a stone shadow can be seen and in direct connection with it the shadow of the lead bougie. The stone in this case was found six cm. above the ureteral orifice "dort wo der ureter die Beckenwand verlassend vom Plexus uterinus umgeben, in dass Parametrium eintritt." In the case of Kuemmell and Graff the *x*-ray shows the ureteral catheter with a wire mandrin passed up to the stone.

Equally interesting are the negative cases; that is, those cases in which a stone in the ureter was suspected but in which the *x*-ray with a lead wire showed the shadow to be due to some causative factor outside the lumen of the ureter. Such cases have been reported by Fenwick, Harris and Reichman. In those cases in which a plain *x*-ray had been taken, without the lead wire, and no stone found at the operation, two possibilities arise for consideration: (1) the stone may have wandered down the ureter and into the bladder, and (2) the shadow may be of extraureteral origin. Various explanations have been given for these shadows and some of the conclusions in regard to their interpretation were reached without an adequate amount of positive proof. In a recent publication Bevan and Smith call attention to the rather frequent occurrence of these shadows, believing that their explanation, as calcified or osseous areas in the pelvic ligaments, is the most probable one. "In examining one hundred plates of adult pelves for various conditions it was found that in 25 per cent. of the plates small, round shadows, varying in size from a BB shot to a pea, occur in the vicinity of the spine of the ischium, frequently bilateral and often multiple. They do not occur in the pelves of children." Phleboliths in the pelvic veins, atheromatous patches in the larger arteries, calcified lymph glands, foreign bodies in the lumen of the intestines, calcified nodules in the seminal vesicles (Bevan) have all been called upon to explain the cause of the shadows. A fecal concretion in the appendix has led to an error in diagnosis; Seelig reports a case in which the *x*-ray led to a diagnosis of stone in the ureter. At the operation no stone was found, but instead an inflamed appendix containing a small concretion. An *x*-ray of the appendix after its removal shows a shadow produced by the concretion.

The question of diagnosis is not an easy problem by any means; it is necessary to exclude lesions of all other pelvic organs in the differential diagnosis, for in one case in which Cospedal removed a calculus from the right ureter, a diagnosis of malignant disease of the ovary had been made. A brief consideration of this subject demonstrates the necessity of determining definitely the nature and the exact location of the "pelvic shadows" before the line of treatment to be carried out in each indi-

vidual case is decided upon. In order to do this it is but necessary to establish the relationship existing between the lumen of the ureter and the shadow on the *x-ray* plate. Various aids in interpreting these shadows have been suggested, as, for example, their size, shape, number and position. While these may be of aid in some cases, they cannot be regarded as infallible, and the statement that the shadow corresponds to the position of the ureter, and hence must be a ureteral calculus, can only be accepted with a certain amount of reserve, for some of the cases in which lead bougies had been passed into the ureter, and then an *x-ray* picture taken, show quite a marked difference in the course of the ureter. In the radiogram in this case it can be seen quite plainly that the ureter makes a wide curve toward the wall of the pelvis, and it is evident, therefore, that a positive diagnosis can only be arrived at by showing the exact relationship that exists between the lumen of the ureter and the suspected shadow, as was done in this case. Not only does this method positively establish the position of the stone, but it also gives us a very definite idea in regard to the size of the stone, so that by comparing the size of the shadow of the stone with that of the fuse wire one could say with a good deal of probability that that particular stone would hardly pass down the ureter, which fact was further testified to by the history of its onset, four years ago, as well as the size of the removed stone. The possibility of pyelography, as devised by Voelcker and Lichtenberg, would hardly come under consideration as an aid in the diagnosis of ureteral stone.

It is well always to bear in mind the possibility of the spontaneous passage of a ureteral stone, and especially if the patient gives a history of having passed one or more calculi at some previous time. As aids in the passage of a stone which becomes arrested in its downward course in some part of the ureter, may be mentioned the use of topical applications to the ureter through a ureteral catheter. These applications may be in the form of local anesthetics, such as sterile solutions of cocain, eucain or alypin, or, on the other hand, the use of lubricants may be resorted to, such as sterile olive oil or almond oil or alboline. This same principle, namely that of lubrication, may be applied to cases of stone in the bladder, provided, of course, the relation between the size of the stone and the lumen of the urethra is such as to make the passage of the stone probable. Such a case came under observation recently at the Presbyterian Hospital. The patient was referred for cystoscopy by Drs. Billings and Bevan. A small stone was found in the bladder; the patient's urethra was of large caliber. It was suggested that the patient urinate, and that after this half an ounce of warm, sterile alboline solution be instilled into the bladder through a soft rubber catheter; this was soon followed by the passage of the stone per urethra. Manual movements along the course of the ureter have been suggested (Klemperer). Recently Jahr has devised an intraureteral method of dilating the ureter and thereby releasing the stone.

The operative treatment will always remain the choice of treatment in a definite number of cases. 1. Where one or more large stones are present, of such a size as to make their passage highly improbable or

impossible. 2. Failure of medical treatment (antiphlogistics, anodynes, urinary antiseptics, etc.) 3. Failure of the use of local treatment, such as lubricants and local anesthetics. 4. Cases of anuria in which the anuria has been present for forty-eight hours or more. In carrying out a uretero-lithotomy one should always bear in mind the possibility of the presence of stones higher or lower in the urinary tract, so as not to overlook them, and thereby to avoid the necessity of a second operation. This oversight can be checked by the use of the *x*-ray. Where this is not possible the question arises of combining uretero-lithotomy with a nephrotomy in order to examine the parenchyma of the kidney for the presence of stones. Some writers, as for example P. Wagner, are very positive in their views on this subject, for he says that uretero-lithotomy "should always" be carried out in combination with nephrotomy. This is a rather broad statement to make, especially if we consider that the *x*-ray shows the presence of calculi in approximately over 92 per cent. of the cases, these figures being based on the average as obtained from the figures of Kuemmell and Rumpel, 100 per cent.; Smith and Bevan, 92 per cent.; Leonard, 97 per cent.; Brewer, 78 per cent.

BIBLIOGRAPHY.

- Albers Schoenberg: Fortschritte auf dem gebiete der Roentgen Strahlen, vol. ix, No. 4, p. 255.
 Bevan and Smith: Surgery, Gynecology and Obstetrics, June, 1908.
 Cospedal: Jahresbericht für Chirurgie, 1906, p. 1107.
 Deaver: Annales of Surgery, vol. xliii, p. 733.
 Eschenbach: Zentralblatt f. Chir., 1906, p. 782.
 Federoff: Zeitschrift für Urologie. Bd. 3, II. I, p. 65.
 Bevan and Smith: Surgery, Gynecology and Surgery, June, 1908.
 Fenwick: Lancet, September, 1907.
 Fenwick: British Med. Journal, June 17, 1905.
 Fiori: Zentralblatt für chir., 1905, p. 564.
 Fowler: Annals of Surgery, December, 1904.
 Gibbon: Annals of Surgery, 1906, p. 743.
 Goebell, R.: Deutsche Zeitsch. f. Chirurgie, Bd. 83.
 Harris, M. L.: Medicine, August, 1905.
 Israel, J.: Muench. Med. Wochenschrift, 1907, p. 1559.
 Jahr: Muench. Med. Wochenschrift, 1907, p. 1181.
 Kolischer-Schmidt: Journal Am. Med. Assn., Nov. 9, 1901.
 Krogius, A.: Jahresbericht für Chirurgie, 1906, p. 1108.
 Kimmell and Graff: Handbuch d. f. Chirurgie; von Bergman and Bruns, vol. v, p. 238, 1907.
 Mohr: Ref. Zentralblatt für Chirurgie, 1908, p. 508.
 Parker: British Med. Journal, July 21, 1906.
 Reichman: Fortschritte: A. D. Gebiete der Roentgen Strahlen, Bd. 9, II. 4.
 Schenk: Zentralblatt f. Gynäkologie, 1906, No. 36, p. 1991.
 Voelcker and Lichtenberg: Muench. Med. Wochenschrift, 1906, p. 105.
 Williams, R. J.: Lancet, May 4, 1907, p. 1233.

VESICAL SYMPTOMS DUE TO DISEASES EXTERNAL TO THE BLADDER.*

LOUIS E. SCHMIDT, M.D.
CHICAGO.

Every practitioner recognizes the fact that there are many general, or constitutional, and local diseases which are productive of vesical symptoms. In this paper I shall not discuss the so-called primary diseases of the bladder. I shall refer to local conditions either adjacent to or at some distance from the bladder, which may be productive of vesical

* Read at the Fifty-Ninth Annual Meeting of the Illinois State Medical Society. Quincy, May 19, 1909.

symptoms. They are oftentimes, yet not necessarily, the distinct cause of secondary changes in the bladder. As to the constitutional diseases producing bladder symptoms, I am inclined to believe that all are the cause, sooner or later, of distinct changes in the bladder wall, mucous membrane or vascular supply. I believe it is universally admitted at the present time that the correct interpretation of the images which the cystoscope permits has been the cause of distinct progress in this field of work. In bringing this subject up for your consideration, I feel as if I ought to give you the reason therefor. It is this: It has been my good fortune to have been allotted a fair experience. I noted that error in diagnosis constantly occurred. It became necessary, therefore, to look about and to eliminate every possible source of error. I have now, for many years, previous to cystoscopic examination, always insisted upon the following: Careful history; physical examination; urinary examination; special tests, blood, bacteriologic, tuberculin test and *x*-ray examination. These, naturally, only in selected cases. Permit me to point out a few facts in connection with the suggestions just made which will show the necessity, not imperatively in all cases, but in those obscure ones which usually require time and thought in coming to any conclusions.

1. As to the anamnesis, I believe important data may be gained, when the order in which symptoms occur or when vesical symptoms are considered in connection with other symptoms, etc., and which gives invaluable information when the cystoscopic findings are considered.

2. Physical examinations are not to be confined simply to the urinary organs or to the neighboring organs, but every organ should be considered, as well as in relation to general diseases. I need only cite as examples, renal disturbances, appendiceal conditions, pulmonary affections and general nervous affections, all of which may produce vesical symptoms.

3. As to urinary examinations, it scarcely needs any explanation. So frequently there are intermittent variations in the urinary findings, which naturally point directly to certain conditions. Bacteriologic, chemical and microscopic methods should be employed.

4. The special modes of examination give, oftentimes, the desired information. I need only point out the *x*-ray pictures, showing lead bougie in the ureter as first devised and shown in 1901 by Dr. Kolischer and myself. The tuberculin test is necessary, as the *Bacillus tuberculosis* is not always found readily in the urine, nor can the cystoscope picture always be recognized, so this test may be an aid in establishing a diagnosis. Again, a blood examination may aid one in coming to correct conclusions.

After going through this preliminary work, the cystoscopic examination is in order. When this is carried out according to prescribed regulations, if the images seen are correctly interpreted, it is possible to come to more accurate diagnosis and to fail less often than if these precautions are not taken. I can conscientiously urge all who undertake this field of work to consider carefully the importance of all this. I might

add that it is not unusual to reverse the order of things, and I am convinced that it often then becomes necessary to insist upon a second examination. All patients are averse to such procedures, and naturally, if they could have been avoided, are perfectly correct in objecting.

I need not in this article burden you with the technic of cystoscopy. This topic has been carefully outlined many times, and all who are interested in this subject are perfectly familiar with all the essential details. It scarcely behooves me to state that the accuracy and adeptness with which one carries out the different modes of procedure are oftentimes of vital importance for the correct solution of the problems which present themselves for our deliberations. Neither shall I advocate or condemn certain instruments or modes of examination or differences in methods of procedure, but I wish it understood that I firmly believe in the teachings of Nitze and the use of cystoscopes made on the principles which he perfected.

I readily confess that I still have failures, but I am positive that whenever I adhere strictly to all I have stated, I have eliminated all the possible points or roads which permit the introduction of error. That there is one great field for error which can never be eliminated, no matter how great our individual experience, must be admitted. It is the personal equation of being able to interpret correctly the images which are seen through the cystoscope. It must be admitted that the cystoscope is an instrument of precision. Therefore, by having all room for error eliminated and using an instrument of precision, a diagnosis can only be established by judging correctly the findings. For this reason, if failures are recorded, they are due entirely to the cystoscopist and the methods and instruments are not to be condemned.

Before proceeding, it will not be out of place to mention—a part never to be overlooked—that two or more diseases may be present in producing vesical symptoms; hence, clear judgment and a knowledge of general, as well as of genitourinary, symptomatology are essential in drawing deductions. To illustrate this point, I need only mention the question which frequently arises: “Are the cystoscopic findings of the bladder commensurate with the symptoms?” Or, “Are the symptoms which are present due to the findings, and is it necessary to consider other factors?” In discussing this subject, I shall not use the classification which is so familiar to all:

1. Symptoms due to conditions above the bladder.
2. Symptoms due to bladder diseases.
3. Symptoms due to conditions in front of the bladder.

This classification obviously does not include many conditions that give rise to vesical symptoms. However, it is useful and of help in many instances. I wish to present a classification which I have evolved from various sources and which I have found useful, and I might state even necessary, in many instances. If it is adhered to in regular routine, I am certain that it must be of help whenever consideration of unusual conditions arises.

1. Bladder symptoms due to constitutional or general diseases which are common to both sexes.

2. Bladder symptoms due to diseases of neighboring organs or other urinary organs, which are common to both sexes.

3. Bladder symptoms due to physiologic or pathologic conditions of the female genitalia, and hence present only in the female.

4. Bladder symptoms due to pathologic conditions of the male genitalia, and hence present only in the male.

5. Bladder symptoms due to primary pathologic conditions of the bladder itself, common to both sexes. In this article, as I have already stated, I shall not take this last division into consideration.

If the history, the physical condition, the urinary examination and other laboratory tests all point to a constitutional condition, what may be expected from the cystoscopic examination? If no other condition is present to complicate matters, naturally, findings are to be expected to correspond with our knowledge on these topics. Now, in what manner do the diseases in this subdivision (1) influence the bladder? Polyuria, oliguria and chemical examination of urine, certain diatheses, toxins, etc., may all cause local irritation of the bladder. Some of these general conditions, on account of circulatory disturbances, may affect the centers of the brain and cord. In this great subdivision cystoscopic findings are often negative; in some instances slight vascular changes are noticeable, and in others slight, frail and generalized trabeculization is to be found, particularly if the sickness is one of some duration. I might add the cystoscopic examinations are not always to be recommended in this class; however, they may become necessary in order to exclude other conditions which may also give rise to vesical symptoms.

As an example, I shall refer to locomotor ataxia. Take the incipient cases, where cardinal symptoms are absent, but where from other signs and symptoms, spinal lesions would have to be considered; cystoscopically minute, frail and generalized trabeculization is, according to our knowledge, expected and usually found. This peculiar condition in conjunction with other factors is of aid in this particular class of cases to permit of making an early diagnosis of incipient tabes. It is, I might state, regarded as of considerable importance, and I have found it of value in many instances. It is frequently present before any marked urinary symptoms occur.

Now, allow me to take up the second division in my classification: the neighboring organs and the other urinary organs. These undoubtedly influence the bladder in a greater degree than all the other organs and general conditions already mentioned. Kidneys, ureters, appendix and all other organs which are common to both sexes should be examined for with careful attention and detail. It is in these cases, in order to interpret the negative cystoscopic findings correctly, that the before-mentioned examinations should be made with much care. If any of the smallest secondary bladder findings are present, it assists or aids in showing the positive physical examination findings to be the cause of the vesical symptoms. Now, let us take up vesical symptoms produced by

appendiceal diseases. Seelig of St. Louis reports three cases belonging to this class, characterized by pain radiating from the kidney region, blood in the urine, and one of the three with frequent, painful urination. As this last case is one of much interest from more than one standpoint, it certainly is worth reporting in detail:

The cystoscopic report of Dr. Johnson shows bladder mucosa normal; both ureteral orifices normal. Left ureteral catheterization permits catheter to pass readily into pelvis; right ureter permits catheter to be passed only two inches from ureteral orifice. Even a catheter with mandrin could not be passed beyond the obstruction. X-ray plates made at three different times showed in each instance a clear-cut shadow in the course of the intrapelvic portion of the right ureter. Pain was persistent, excruciating and incessant after the catheterization, and this symptom confirmed the belief that a stone had been dislodged. The ureter was exposed from kidney to bladder, but no stone was found in it. At the site where the x-ray showed a shadow the ureter was kinked as if pulled upward and inward. At the site of kinking there seemed to be a hard nodule resting on the anterior surface of the ureter, and in order to determine what this nodule was the peritoneum was opened. It was found that an adherent appendix, with a concretion, was causing the kinking of the ureter. An appendectomy was done and x-ray of this showed a distinct shadow corresponding to the one seen in the other plates.

Seelig concludes that hematuria in cases of appendicitis in his record of three successive cases may be caused by the action of toxins on the kidneys; by direct involvement of the kidney; or by direct involvement of the ureter. In these, as well as in all similar cases, the cystoscopic findings may be negative, except for the urine being emitted from the ureters. Cases of pyelitis in the course of appendiceal conditions are not at all uncommon, and the vesical symptoms are oftentimes pronounced. Again, inflammatory conditions may extend toward the bladder and involve it by extension. In one case of chronic appendicitis I noted edema bullosum involving the *bas fond* of the bladder. Not to forget, I wish to mention in passing, that vesical symptoms can be and often are produced by rectal and anal cases; hemorrhoids, polyps, anal fissures and fistulae, and tenia; and intra-abdominal and extra-abdominal conditions of all kinds, inclusive of the appendix, are to be considered. It would be an easy matter to cite instances where the above causes were the etiologic factors of vesical symptoms.

At this point I wish to remind you that so many cases that come for examination have had gonorrhea. How is it always possible to state with certainty that any of the bladder symptoms are not caused by some of the conditions caused by the gonorrhea or by some of its processes which may still be active? Naturally, only by careful examinations, concerning which I need not go into detail here.

Let us take up the kidney and ureteral diseases and injuries, for instance, which produce vesical symptoms. What are the cystoscopic findings? I will hurriedly review some of them, but I wish to state that, in a general way, most renal diseases are accompanied by bladder symptoms. They are either produced reflexly or directly, and here one may or may not find secondary bladder changes. There may be direct extension of disease from the kidney to the bladder. In these cases positive cys-

toscopic evidence is found. Finally, changes in the character of the urine. Here, cystoscopically, it is often impossible to notice the character of the urine emitted from the ureteral orifices, and which permits of diagnosing certain conditions; however, ureteral catheterization is indicated.

A man aged 31 years acquired gonorrhea. At the end of three to four weeks there was frequency of urination, with tenesmus and pain. This continued with more or less severity for the past two years. Apparently, at the beginning, it was nothing more than an acute posterior urethritis. He placed himself under the care of various physicians, who gave him the usual treatment for prostatitis, etc. His urine was slightly turbid, due to pus, and a few red blood corpuscles. There was apparently no other sign or symptom at the time of examination.

He was given a cystoscopic following a most careful physical examination, and it was at once noted that his symptoms were altogether out of proportion to the findings per rectum, per urethra and bladder. Double catheterization was undertaken and the urine from the left side corresponded to the findings of mixed specimen. The *x*-ray revealed stone. Nephrectomy was done. The greater portion of the kidney substance had been destroyed by active abscesses and numerous stones were found. At the end of four weeks he finds himself free from all signs and symptoms.

This is an example of how and why it is necessary to exclude gonorrhea and its sequelæ as the cause of vesical symptoms, and a pronounced case where absolutely and positively only vesical symptoms were present in a distinct renal condition, and in the absence of all other causes.

One and one-half year ago a medical student consulted me for hematuria and frequency of urination. He had never had any venereal disease. The condition had existed but a few days. Cystoscopically the bladder was entirely negative; blood was noticed to be unilateral. Double catheterization and functional tests were carried out, as well as a bacteriologic examination. The diagnosis was tuberculosis. He refused operation and took up the opsonic treatment. Nine months had elapsed until I saw him again, and some three months previous a nephrectomy had been done, but his urinary symptoms had become much worse and still persisted after the operation. Cystoscopically a marked tuberculosis of the greater portion of the bladder was now present. Vesical symptoms were present at both examinations; at the former no bladder changes, in the latter bladder changes present were due to descending infection, and when the kidney was no longer the cause of the vesical symptoms, as it had been removed.

Some six years ago I removed an infected-stone kidney in a young man aged 25 years. His symptoms disappeared. However, in the past three years he has complained of an increased frequency of urination, passing large quantities of urine. He has been submitted regularly for three years to all the afore mentioned modes of examination, including *x*-ray and cystoscopy, and always with negative findings. Only within the past month, however, has the cause been found. The *x*-ray shows positively the presence of a small stone. All this time it was an impossibility for me to tell him the cause, yet I have been constantly on the lookout for this condition. Not less than seven or eight *x*-ray examinations, all by competent workers, had been made in the past two and one-half to three years.

I wish to show this case as an example wherein all the findings were negative until the radiogram established the positive diagnosis.

Now, for the subdivision of diseases which are only to be found in the female. Naturally, where these organs are practically all in the pelvis, our examination is confined to these parts. Every up-to-date gynecologist recognizes the importance of cystoscopy. Consider the relationship and the intimacy of the urinary organs with the female genitalia.

Could anything else be expected when two systems are so closely associated? The enormous number, if I may be permitted to say so, of functional disturbance and diseases of the bladder in gynecology necessitates a modern gynecologist to be a urologist and cystoscopist. As for myself, I believe a urologist and one who makes pretensions to being a cystoscopist, can scarcely confine his efforts to the male. Yet this is done only too often. A cystoscopist who undertakes to examine women with the cystoscope must, therefore, for the foregoing reasons, be competent to make thorough pelvic examinations. It is in this particular subdivision that one sees so-called secondary changes in the bladder so often, from which inferences must be drawn correctly in order to make positive assertions. There are times when cystoscopy reveals conditions of the female internal genitalia, where physical examination fails, or where conditions have been overlooked in such an examination. As to the group of diseases common only in the female, here certainly one finds organs whose relationship to the urinary organs is fairly intimate, but these organs both in health and disease may have influence on the bladder and produce vesical symptoms. These sexual organs are open to a large number of variations from the normal; I need mention only displacements, etc., and these, as well as inflammatory or other pathologic conditions are productive of influences on the bladder causative of symptoms. Permit me to mention some of the physiologic processes of the genitalia in women which oftentimes gives rise to vesical symptoms: Menstruation has been shown frequently to be accompanied by a congestion of the bladder—cystoscopically, this has been recognized. Whether or not vesical symptoms are positively due to the congestion of the bladder is not certain. Now, let us consider pregnancy, labor and the puerperium. During these periods there are undoubted changes in the bladder that are associated with the growth of the uterus and with the greater vascular supply of all the plevic organs. Cystoscopically increased, full and more worm-like vessels. The veins are also more pronounced. Naturally, the color of the mucous membrane becomes slightly darker in hue. The trigone is particularly involved, and besides the interureteric ligament becomes more pronounced. As the uterus enlarges there is a characteristic depression of the posterior wall of the bladder. This commences in the fourth week. The longer the uterus remains in the pelvis, the more pronounced the depression. In the third to the fourth month, the depression disturbs cystoscopy. In these cases great care must be taken in cystoscopic examinations, as the bladder has a peculiar shape. The ureteral orifices are naturally displaced under these conditions.

In the puerperium, according to Stoeckel, there is a similar finding as regards hyperemia and turgescence. But besides typical findings, there may be edema of the internal urethral orifice, with irregular folds of the bladder wall, and oftentimes signs of traumatism due to the passage of the child or to instrumentation. This condition is not to be mistaken for edema bullosum.

Following the menopause, there are distinct senile changes in the bladder. There is an anemic appearance and an atrophic condition of the

mucous membrane, yet with irregular folds, due to loss of elasticity. These changes occurring immediately following conception, are probably due to a physiologic-chemical irritation. Naturally, in the growth of the embryo, mechanical insults and passive congestion may result; even varicosities have occurred under these circumstances. In the late periods of pregnancy, severe ureteral compression, one or both, with ureteral orifice changes, have been recorded. Naturally, all kinds of changes take place in the kidneys. Pregnancy, labor and the puerperium give rise and are predisposing causes to infection, and consequently the positive cystoscopic findings are not at all uncommon. All these changes enumerated give rise to manifold vesical symptoms. Pyelitis during pregnancy has been given much attention, particularly from a cystoscopic standpoint, in diagnosis and treatment. I wish to add that in most of these cases there is an absence of any cystitis. Pathologic labor may give rise to numerous interesting conditions.

There are many gynecologic conditions that give rise to bladder changes, and it is these changes that cause the symptoms. I need only mention prolapse, cystocele and descent of the anterior wall of the vagina. Here we deal with the anterior vaginal wall closely connected with the bladder. Whatever occurs to the vaginal wall will necessarily also occur with a portion of the bladder. The cystocele which results is oftentimes very marked. Cystoscopic findings also naturally are different. Distortion of the trigone, ureteral orifices, appearance of mucous membranes and other changes are readily seen cystoscopically. Often the cystocele must be supported by a tampon if cystoscopy is to be undertaken. On account of the folds resulting from this, the finger must be used to straighten them while examining with the cystoscope. In all instances of retroflexion and retroversion, the bladder takes part. Also in any dislocation, etc. It is scarcely possible to describe all the peculiar bladder configurations that may occur from these changes. Oftentimes at the time of introducing the cystoscope the shape and position of the bladder is made noticeable. Stoeckel records numerous cases, where from cystoscopic examination, considering the configuration of the bladder, location and appearance of the trigone, he made diagnosis of some of these gynecologic conditions. Any gynecologic condition in the pelvis that has a tendency to form a tumor may produce strange configurations of the bladder. Yet certain factors, as regards the tumor producing these configurations can be suggested, and aid or substantiate a diagnosis. As to the character of the tumor, nothing absolutely positive can be elicited. For instance, myomata, small ones, if on the anterior wall of the uterus, might produce depressions and elevations on the posterior wall of the bladder. If the uterus is much enlarged it might produce an appearance in the bladder like that caused by a pregnant uterus; however, there would be much less hyperemia. It is estimated that two-thirds of the women suffering from myomata have bladder symptoms. Ovarian, tubal and extrauterine pregnancy: The ovarian and tubal tumors do not show anything positive cystoscopically; some may become adherent and cases of rupture have been recorded. At the present time I have under ob-

ervation a case of pyo-salpingitis which ruptured into the bladder and produced vesical symptoms. Extrauterine pregnancy shows nothing positive unless rupture into the bladder occurs. Parametritis exudates: Oftentimes this tumor produces elevation, etc., and at the most pronounced point it nearly always produces edema bullosum. This is a peculiar kind of edema first described by Kolischer in these conditions. Naturally, where parametritis is frequent, this condition is common. The bladder wall is edematous and there are clear, grape-like swellings present, sometimes reaching the size of a small pea, usually pale in color, or sometimes slightly purplish. They are smooth and glistening and apparently float. This condition is usually circumscribed. It may arise whenever a process external to the bladder becomes adherent to the bladder. Formerly it was supposed to occur only in inflammatory diseases. However, it has been noticed when cancer of the uterus has become adherent to the bladder wall. It occurs near ulcerations, follows fistula operations, and is a manifestation of bacterial or neoplastic irritation.

Cancer of the uterus and vagina: These do not, as a rule, invade the bladder. They grow around it and compress it more or less, but become attached only when fairly advanced. Cancer of the cervix is the most usual type to involve the bladder. There are no particular changes in the bladder until the cancer is well advanced. Its characteristic findings are nodulated surface pressing on trigone, involvement of trigone, and depressions between the elevations. These may become more pronounced and even the presence of edema bullosum be noted; and finally, distinct cancerous changes in the bladder wall itself may occur. Therefore, cystoscopically, oftentimes some information as to the stage of advancement of the cancer may be obtained, which is of help to the surgeon in selecting operative cases. Traumatism, externally, may show signs cystoscopically, following vaginal or rectal examinations. By permanent and fixed conditions of the uterus marked symptoms may be caused. Operations, such as Adams-Alexander and ventrofixation, produce all kinds of distortions with other conditions, such as circulatory disturbances, and these can be recognized cystoscopically. Many other operative interferences give rise to vesical symptoms. Some ureteral conditions may be diagnosed by the appearance of the ureteral orifices, of fistula, etc.

Now, for the last sub-class; diseases only present in the male. The external genitalia, as well as the internal genitalia, are the only organs that must be taken into consideration. Inspection, palpation, percussion, rectal and bimanual examinations are the modes of examination on which one relies. It is almost needless to state that instrumental examination, diagnostic sounds, to show the presence or absence of strictures, and other instrumental examinations at times may be indicated. This also holds true in the previous class of cases. Here, too, abdominal examination for the presence or absence of retention is made. At times, it may be desirable to examine with a catheter or with other instruments. Considering the class of diseases producing vesical symptoms which are present only

in the male, they naturally can be produced only by organs found in this sex. Strange as it may seem, the greater amount of pioneer work in cystoscopy was done in the male. Urologists were undoubtedly the first as a class to take up this mode of examination. Their experience tends more to the treating of males; therefore, I believe there is a more accurate knowledge of this class of cases than of the corresponding class in the female. The sexual organs are those to which I have particular reference. It is true that there is a greater intimacy of the sexual organs with the urinary organs in the male than in the female, yet they do not occupy the same extent. Let us take the subject of the prostate into consideration. This one, if no other, has been repeatedly and thoroughly discussed. I need only mention that no matter what the character of the enlargement is, the bladder findings may be the same, except for the character of the prostate within the viscus. It is needless for me to state that one meets with lateral lobe enlargement, median lobe enlargement, or a combination, also collar-shaped and horseshoe-shaped enlargements. One should not forget that there are intraurethral hypertrophic nodules which may be productive of the same symptoms and be productive of the same bladder findings. What are they? As these conditions are obstructive to the outflow of urine, naturally the findings are secondary, practically only trabeculization of a more or less marked character. At the beginning, these changes are mostly in the *bas fond* and adjacent parts, yet sooner or later they involve the entire bladder. The muscular bands are coarser in the base, interspersed with finer bundles. Acutely or chronically inflamed prostates also give rise to bladder symptoms. It rarely ever becomes a necessity to make an examination in the former. The latter, and I might add true cancer of the prostate, are productive of obstructive conditions, and cystoscopically, there may be the same findings as in senile enlargement. It is common knowledge that diseases of the seminal vesicles can give rise, both in the old and the young, to all the symptoms of cystitis. Now, what do we find cystoscopically? I might say that it depends on the condition of the vesicles. If they are more or less acutely inflamed, whether distended or not, etc., there may be bulging of the portions of the bladder adjacent to them; even some of the inflammatory conditions, by extension, may be present, etc. Naturally, in elderly persons, prostatic enlargement may in addition also be present; also contraction of the neck, but this occurs more frequently in the middle-aged. These may, and usually do, produce accessory findings. Let us take the latter condition into consideration. Cystoscopically, one sees the internal orifice more or less even, apparently glistening and pale-pink in color, surrounding the cystoscope window when turning the instrument around on its axis, without withdrawing or introducing it alternately. In addition to these, of course, the common changes produced by obstruction are present.

Not to overlook the simple cases, I wish to mention cases of stricture, not narrow, or even where it is possible to pass only a filiform bougie, but the large number of cases suffering from wide strictures which produce all kinds of vesical symptoms. These wide strictures are always

overlooked unless diagnostic instruments are used, and I have frequently seen physicians who have been at a loss to diagnose the bladder symptoms, because they were overlooked. The cystoscopic findings in these cases always, at least in fairly advanced cases, are of more or less long standing, and always show trabeculization. Whenever this condition is noted, it is our first aim to exclude all obstructive conditions. Therefore, if a cystoscopic examination is made previous to the passing of diagnostic instruments, I immediately follow it. Why do I not precede with it? Simply because such a procedure may cause an irritability of the bladder or even cause a hemorrhage if the stricture is succulent, and prevent in this way a satisfactory examination with the cystoscope. I do not wish to discuss the use of cystoscopes. I have reference to the Nitze type. It can be stated that there have been many types of instrument devised to overcome this obstacle, as well as others which I need not mention, as this topic is not now under consideration. Strictures of the female urethra are not at all uncommon, and are, as in the male, productive of similar symptoms. It is needless to cite examples, although I have many records both of male and female cases. Take, for instance, diseases of the caput gallinaginis, the utriculus, the urethra, with its polyps, varicosities, fissures, etc., into consideration, and again one finds many causes for conditions such as those under discussion. I have for years kept these in mind, and need only add that thorough examinations are a necessity in order to exclude these as the causes of vesical symptoms.

In recalling my classification, I wish it positively understood that I have not even attempted to enumerate all the diseases and conditions in each subdivision which, directly or indirectly, produce the symptoms just discussed. I have made an outline which I hope will be of service to those who have this subject at heart. I might even add that some important lesions have been omitted, and again, minor ones have been taken up with more or less detail.

DISCUSSION ON THE JOINT PAPER OF DRS. BEVAN AND KRETSCHMER; ALSO ON THE PAPERS OF DRS. KOLISCHER AND SCHMIDT.

Dr. Arthur Dean Bevan, Chicago:—Mr. President: It is very late and there are several interesting papers still on the program, consequently I shall have very little to say. Dr. Kretschmer did not have the opportunity to describe, nor did he include in his paper the exact technic employed in removing this ureteral stone. A word in regard to that. We employed the old-fashioned incision, which was used originally for ligating the common iliac artery, practically a McBurney incision, but not entering the peritoneum at all. A large gridiron incision was employed, the peritoneum and transversalis fascia pushed to one side, and the ureter found behind the peritoneum. We left an ureteral catheter in the ureter, and it proved to be of great assistance because it enabled us to feel the ureter and the stone, and with a couple of blunt hooks the ureteral catheter and stone were pulled easily into view, and a knife used to divide the ureter over the stone, a small incision being made, the stone removed, and one or two fine catgut stitches used in closing the ureter. The man left the hospital within twelve days, so that recovery was interrupted. This is the best method for removing ureteral stones in that position. Where the stones are much lower down in close contact with the bladder, immediately behind the bladder, the parasacral route may be necessary, unless some intravesical means of removing the stone or stones can be used.

In regard to our experience with kidney stone in general, I may say that in 1897 I was the first man in the United States to make a successful diagnosis with

the *x*-ray of stone in the kidney, which was definitely shown by operation. Since 1897 we have had about sixty stone cases in my service, and the *x*-rays which you have seen are largely from my service at the Presbyterian Hospital, the work being done by Dr. Potter. This class of work shows distinctly the necessity of team work. You have to have an expert *x*-ray man, an expert in the use of the cystoscope, in passing the ureteral catheter, like Dr. Kretschmer, and a surgeon, who is the other factor in the case. You have to have a laboratory man who can make a complete and careful examination of the urine. The operating surgeon must be able to control and superintend the entire work. Of the sixty cases we have had, in not a single instance, where we have made pyelotomy or nephrolithotomy, have we lost a patient. We have lost two cases of nephrectomy in connection with kidney stone work, because of their difficulty, and because they were secondary nephrectomies, with perinephritic adhesions. We have made but one mistake in diagnosis by the use of the *x*-ray in this entire series, and that was a case in which we did not recognize stone, but made an operation and removed the stone. Going back to our plate, we could distinctly see it was a small stone behind the twelfth rib. I do not know of any line of work that is so fascinating and so capable of giving satisfactory results, if you do good team work, as in kidney and ureteral stones.

Dr. John B. Deaver, of Philadelphia:—I was delighted with Dr. Bevan's remarks regarding these cases of stone in the kidney and ureter. It falls to my lot to operate on a number of such cases. I can see the great advantage and benefit which can accrue from team work in connection with these cases, and Dr. Bevan is very fortunate in having connected with his service such men as he has mentioned. Relative to the paper of Dr. Kolischer, I am a believer in the suprapubic method of removing the enlarged prostate in the majority of cases. I was glad to hear him "deal out," as they say in fistie parlance, solar plexus blows against the perineal operation. There were one or two points in connection with Dr. Kolischer's remarks which impressed me very much, and particularly with reference to inspection. In doing suprapubic prostatectomies, I see every step of the operations, the same as by the perineal route. I was particularly struck with Dr. Kolischer's remarks relative to the question of perineal drainage. I have yet to resort to perineal drainage, as I have been able to obtain satisfactory results from drainage above the pubes. As to the question of leaving the prostatic urethra, I leave it when I can do so. With regard to fistula and incontinence of urine, having done both of these operations, and having seen cases operated on by surgeons, I am convinced that more accidents follow the perineal than the suprapubic route. More damage is done to the anatomy of the parts by the perineal than by the suprapubic route. A French surgeon who does a large amount of perineal work recently said the day was not far distant when perineal prostatectomy would be done away with altogether on the Continent. It has been done away with already in England, and I feel that is true to a great extent in this country, yet there are a number of operators in the United States who are doing good perineal work.

Dr. James W. Hamilton, of Mount Vernon:—I had not intended to take part in this discussion, but I became interested to such an extent that I want to say a few words with regard to the question of the prostate gland. The prostate gland is one of the most important organs and has to do more generally with the comfort of the male than any organ we have to contend with. We have been making a series of histological studies of this gland recently, and I have become more and more convinced the deeper we have gone into the work that too little attention is paid to the anatomical structure of the organ. Now, you will find men often in middle life coming into the office complaining of lumbago and of various rheumatic pains radiating down the hips and thighs, chronic grunTERS from these causes, subject to changes in the weather, and if you examine these men with the index finger you will find either an hypertrophied or inflamed prostate gland in 90 per cent. of them. These patients will get no relief until you have treated

their prostate. I do not believe that surgical treatment of the prostate gland has so far overshadowed the medical treatment as to lead us to the belief that it is altogether a surgical disease. First, we have to deal with this gland practically from a medical standpoint. These patients come to us for medical relief, and we must relieve them, if possible. With regard to the histological aspect of this subject, if you will study the neurons supplying the end bulbs of Krause and the periprostatic tissue, you will find they are larger in cases of hypertrophy of the prostate gland than in the normal gland. The prostate gland is lying there, where it is subjected to continual movement by the perineal muscles, tender, hyperesthetic. You have a movement of these neurons in these bulbs, and then if you go a little further and study the hypogastric plexus and the sympathetic connection between the hypogastric and the spinal plexus, you will understand how a man has lumbago from an inflamed or hypertrophied prostate gland. That feature has been overlooked in the immediate rush for surgery of this organ. It has fallen to my lot to remove the prostate gland, and I remove it in every case by the perineal route, and I predict that in ten years from to-day men will change their minds with reference to the removal of this organ. I was much impressed with the illustration of Dr. Deaver in going through the cellar door instead of through the roof of the house in breaking in. I do not believe in this butterfly incision, nor do I believe in the crescent incision, for I cannot understand why men should destroy anatomical structures that can be left alone. A man who cannot remove the prostate gland through a straight incision in the median line is not competent to undertake the operation. If you resort to transverse incisions in any form you are bound to cut the genital distribution of the pudic nerves. I do not care whether the man's age is fifty or eighty, when you interfere with the genital distribution of the pudic nerve supply to the sexual organs, you have done to that man what you would do to a woman when you have removed her ovaries.

Dr. Kretschmer (closing the discussion on his part):—It is a well-known fact that patients who have a stone in the ureter do, at times, pass this stone of their own accord, so that we should not be in too much of a hurry to remove these stones surgically. Among the non-operative methods for removing stones from the ureter may be mentioned dilatation of the ureter, the application of local anesthetics, such as cocaine or alpin solutions, and also the use of lubricants, such as olive oil, and sterile alboline. These procedures have been followed by the passage of stones down the ureter. These lubrications may also be applied to stones after they have reached the bladder. Such a case came to Dr. Bevan's service, and after using a sterile alboline solution in the bladder the stone was passed through the urethra. This stone was in the bladder for six or eight weeks.

Dr. Kolischer (closing the discussion):—This discussion has been a source of great satisfaction to me. The remarks made by Dr. Hamilton do not convince me that perineal prostatectomy is preferable to suprapubic prostatectomy. He did not disprove what I said in my arraignment against perineal prostatectomy. I think he will change his method of operating to the suprapubic when he has operated on a great many more cases, and he will find he will not have the troublesome consequences which all the surgeons have who operate on patients by the perineal route. I believe he will be one of our party.

What Dr. Bevan said about team work in kidney cases is very satisfactory, and it is very refreshing to have a general surgeon recognize the value of cystoscopy. Many years ago the majority of surgeons did not think the use of the cystoscope was necessary, but many of them have since changed their views, and it is encouraging to me to have a man of Dr. Bevan's standing recognize the value of cystoscopy, for the appreciation of which I have worked for twenty years. If I succeeded in having Dr. Deaver endorse the principal features of my remarks, I feel more amply and better rewarded than I expected.

THE PATHOLOGY AND DIAGNOSIS OF DILATATION OF THE RENAL PELVIS.*

LEWIS WINE BREMERMAN, A.M., M.D.

Formerly Professor Genito-Urinary Surgery, New York School Clinical Medicine; Genito-Urinary Surgeon to the Oak Park Hospital; Member American Urological Association.

CHICAGO.

Dilatation of the renal pelvis is classified under the group of renal conditions known as hydronephrosis and pyonephrosis, and as such I will endeavor to bring to your attention some of the more salient features regarding the pathology and diagnosis. As the diagnosis depends to a considerable degree upon the etiologic factors, these will be presented for due consideration. In conditions of hydronephrosis we have a distention of the renal pelvis, calices, the renal substance, one or all of them, produced by pressure of a retained fluid, the retention produced by an obstacle which prevents the free flow of urine from the kidney. The kidney involvement follows in the order given above, first by a dilatation of the pelvis, then by distention of the calices and finally by distention of the renal substances. It is a well-conceded fact that the obstruction if complete must be intermittent in character and if partial must be of long duration, as permanent complete obstruction will never produce hydronephrosis; the result will be atrophy of the kidney with total loss of renal function. If the obstruction is near the renal pelvis it will produce a condition of hydronephrosis much more rapidly than if the obstruction be more distant, as the retardation of the flow of urine caused by vesical neoplasms, prostatic obstruction or stricture of the urethra.

The important etiologic factors upon which the diagnosis depends are: calculi retained in the outlet of the pelvis or in the course of the ureter, stricture of the ureter, twists or kinks of the ureter and pressure on the ureter from without. Vesical tumors, the position of which are close to the ureteric orifice, enlarged prostate and urethral strictures are less common causes. The diagnosis of hydronephrosis may be frequently overlooked because there may be no distinct group of symptoms, but if the etiologic factors already mentioned be duly considered one will be led to suspect the condition to exist.

Physical examination of the patient may help little, as there is no evidence of tumor on deep palpation until rather late in the disease. Morris found tumor evident in 25 out of 42 cases. Hydronephrotic enlargement of the kidney when tumor may be palpated is recognized by percussion which will give distinct dullness, the area of dullness being influenced by the upward and downward motion of the diaphragm. When the tumor attains a very large size the colon and intestines are displaced; where the tumor is of moderate size the percussion note over the anterior surface of the enlargement will be resonant or tympanitic. Frequently the lobulated character of the mass may be outlined by deep palpation,

* Read at the Atlantic City Meeting of the American Urological Association, June, 1909.

and fluctuation may be elicited when the hydronephrotic condition attains considerable size. Aspiration with a fine needle through a part where there is distinct dulness on percussion will aid materially in establishing a diagnosis. In the intermittent form of hydronephrosis the alternating appearance and disappearance of the enlargement, together with appearance and disappearance of the pain, may be mentioned as rather prominent symptoms. In this form accompanying the disappearance of tumor a sudden discharge of a large quantity of urine into the bladder will occur; thus a period of polyuria.

The conditions from which hydronephrosis must be differentiated are pyonephrosis, perinephritic abscess, hydatid cyst of the liver or of the kidney, ovarian tumors, cystic diseases of the kidney and distended gall bladder. In pyonephrosis there will be present distinct septic phenomena with pus in the urine, which are absent in hydronephrosis. Ovarian tumors, unless very large or pedunculated, occupy a position much lower in the abdomen than is the case in hydronephrosis. Careful bimanual examination will distinguish between the two. Enlargements of the liver are recognized as being very much more anterior than hydronephrosis, but frequently, only by aspiration, can a diagnosis between hydronephrosis and hydatid cyst be reached. The particular features in diagnosis which I wish to bring to your attention are not those just mentioned, which are evident late in the condition, but I wish to show the condition may be recognized early and possibly prevented, by finding early those conditions which will eventually produce hydronephrosis, and eradicate them.

Twists and kinks in the ureter are rather common causes of hydronephrosis and many times are the result of movable kidney. This variety is intermittent in character, the pelvis becoming well dilated, filling up, overcoming the kink by lifting the kidney, and then empties itself rapidly. The condition here may be readily overcome by nephropexy. Stone in the pelvis, blocking the outlet of the ureter, produces the same result. Diagnosis may be made by *x*-ray or by passing the wax-tipped catheter, scratch-mark upon which will aid us materially in corroborating our *x*-ray findings. The ultimate consequences concomitant with progressive hydronephrosis may be aborted by early recognizing the condition. The same may be said of stone occluding the ureter. It may be here mentioned that the passage of the wax-tipped catheter in the male is accompanied with just as great ease as it is in the female.

In the male the only cystoscope with which I am familiar that may be used for wax-tipped catheter work is the old model of the Tilden Brown instrument. In this instrument the catheter may be run through the catheter tubes backward, thus allowing the wax tip to extend beyond the end of the telescope and catheter tubes. After the bladder is dilated with liquid the catheter tube and telescope is gently passed; this may be performed without affecting the wax on the tip of the catheter, and the catheter may then be readily passed into the ureteric orifice. After the catheter has been gently pushed forward to the pelvis, if it meets no obstruction, it may be withdrawn and examined for markings, which are typical if it has been scratched by the rough edges of a calculus. It

is a well-known fact that frequently a stone passing along the ureter may take months in making its descent along the ureter or may become permanently lodged. The diagnosis of this condition is not difficult, and recognized early will present progressive hydronephrosis and destruction of the kidney.

Vesical neoplasms are rather commonly the cause of hydronephrosis. This is entirely due to the fact that their location is near the ureteric orifices. One case which has recently come under my observation showed at cystoscopic examination a pedunculated papilloma immediately above the right ureteric orifice, which dropped down over the ureteric orifice and prevented the flow of urine from that side. The patient complained of considerable pain in the right lumbar region which was intermittent in character. The distention of the pelvis was relieved by allowing the bladder to become distended, thus stretching the bladder and lifting the tumor away from the ureteric orifice; this was followed by rather copious polyuria and then a recurrence of the pain. This patient was under the observation of several surgeons; in some cases the lesion was diagnosed as renal and an operation recommended. She had never had a cystoscopic examination until she came to me. A cystotomy was performed, the papilloma removed, and the patient has made an uninterrupted recovery. I have catheterized the right ureter recently, which allows a No. 6 catheter to pass freely. There is a slight dilatation of the pelvis, which will hold about 20 c.c. of fluid. The sample of urine collected at this time was normal, her symptoms have entirely disappeared and she claims that she is perfectly well.

Strictures of the ureter are rather common and are the result of an inflammatory process of trauma, or may follow operative procedures upon the ureter, such as plastic work or the removal of ureteral stones. Stricture is not difficult to recognize. The ureteral catheter may be used to diagnose the condition, the size and location. One case under my observation had a ureteral calculus removed from the ureter ten inches from the lower end. This was followed by suppuration with a long-standing lumbar fistula, which eventually closed. When I first saw him I had difficulty in passing a No. 3 catheter; I have dilated this up to No. 6 French. However, due to the long-standing occlusion produced by the stone, there is a marked dilatation of the pelvis, which will hold about 180 c.c. of fluid. Infection had already taken place and the sac was full of purulent fluid which showed a large number of colon bacilli. This patient had had exceedingly large doses of dead bacilli, as high as several billion, without the slightest benefit. I have recommended a nephrectomy, as the kidney function is impaired and the general condition of the patient is rapidly falling below par.

Hydronephrosis begins as a distention of the pelvis which extends to the calices and renal tissue. With distention of the pelvis the kidney tissue becomes swollen with multiple ecchymoses, followed later by edema, paleness and atrophy beginning in the pyramids; the papillæ become flattened. The pyramids, as well as cortical substances, later on become gradually transformed into connective tissue due to interstitial infiltration, and finally a large multilocular sac is formed. At first the

kidney substance is extended like a cap over the dilated pelvis, but later on there is no kidney substance evident. It is unknown with what rapidity the kidney tissue and the secretion of urine disappear, for it has been shown that when these hydronephrotic kidneys, markedly enlarged with only a very small portion of the kidney structure visible, are opened and drained sometimes there is secretion of a large quantity of urine. The hydronephrotic sac becomes adherent to the surrounding organs from chronic inflammatory changes, which make its extirpation difficult. The sac usually contains a transparent fluid resembling urine. If there is active kidney substance present the fluid contains a variable amount of urea or uric acid, but if all the kidney substance has disappeared the fluid contains no urea or uric acid.

It is evident that progressive hydronephrosis is only eradicated by surgical interference, and, as I have shown, early diagnosis is essential, thus preventing the condition or interrupting its progression. The best means of diagnosis in hydronephrosis is cystoscopy and ureteral catheterization. With the cystoscope we are able to tell whether or not there is any obstruction in the bladder which would retard the flow from the ureter; we are able to study the appearance of the ureteric orifice. The characteristic appearance of the orifice is a very valuable aid in reaching a definite diagnosis of the renal condition. I have been criticised for the statement, nevertheless I am still inclined to believe that the appearance of the orifice and the manner of the efflux of urine is important. I have, however, seen conditions where the kidneys have been greatly involved with absolutely normal appearing ureteric orifices, and I have seen markedly changed orifices show no kidney lesions whatsoever. Yet, if the ureteric orifice is involved, it leads one to suppose that there is an accompanying kidney lesion.

If one ureteric orifice is normal, the other distinctly abnormal, then with a reasonable degree of certainty we can suspect the abnormal kidney condition to be on the side of the abnormal ureteric orifice. A stone occluding the ureter, near the ureteric orifice, gives characteristic findings as well as tuberculosis of the kidney. Dilatation of the ureter and kidney pelvis may be suspected when the ureteric orifice is seen like a pin point opening, with considerable edema of the surrounding mucosa. The ureteral catheter is an instrument of great importance in diagnosis. With it we are able to locate obstructions, elicit the fact whether or not they are produced by stricture or by stone. By passing the catheter upward into the kidney we can tell to a certainty by the flow of urine from the catheter the fact relative to dilatation. If the flow is very rapid, running in a continual stream, spurting out well from the catheter, it may be concluded with a reasonable degree of certainty that there is some distention with the contained fluid under pressure. The rapidity and amount of flow may be compared with the urine from the other kidney. With the cystoscope still in place, with as large a catheter as the ureter will take pushed into the kidney pelvis, inject into the end of the catheter colored fluid, watching carefully for the return flow down the ureter alongside of the catheter. If there is none, then all the fluid

remains in the kidney pelvis, and by measuring this fluid one is readily able to ascertain with some certainty the exact size of the dilatation. When the pelvis becomes distended there is a distinct sensation of fulness or pain felt by the patient. It must be remembered that the pelvis must be drained well before carrying on this procedure. The normal capacity of the pelvis must be considered. I have found in the male that the normal pelvis varies between 10 and 12 c.c. and in the female between 8 and 11 c.c. However, unless the pelvis contains more than 15 c.c., I do not consider the dilatation of any great importance. It must not be forgotten that many cases of simple hydronephrosis become infected and very rapidly the entire structure is riddled with pus areas.

The etiologic factors in hydronephrosis are easy to recognize, and by eradicating them the process of hydronephrosis can be prevented, or checked if it has already started, thus saving a kidney which, if the condition was allowed to progress, would eventually have to be removed. I have endeavored to show that the knowledge of the cystoscope and the use of the ureteral catheter are of paramount importance in such diagnostic work.

72 Madison Street.

A UNIQUE FOREIGN BODY IN THE MALE BLADDER AND THE REMOVAL BY SUPRAPUBIC CYSTOTOMY.*

H. O. WHITE, M.D.

Professor of Anatomy in the Medical and Dental Departments of the University of Illinois

AND

R. ROBINSON DUFF, M.D.

Assistant in Anatomy

CHICAGO.

It is with great pleasure that we present this case to you for your very kind consideration and discussion. It is of interest from the standpoint of the surgeon, neurologist, and last but not least, the anatomist. We have taken the liberty of going into the literature, anatomy and pathology carefully, and also attempted to elicit a careful family and personal history of the case in hand.

Family History.—Parents living and in good health. Of three brothers, the youngest has been ill all his life, having had all the diseases of childhood, and has met with a number of accidents; had St. Vitas dance three years ago, but is apparently well at the present time. Sisters all living and well. In considering other branches of the family tree I was unable to elicit anything that would even suggest mental derangement. Personal history: The patient, aged 28 years, a switchman, has had all the ordinary diseases of childhood; is fairly well nourished; height, 5 feet 9 inches; weight, 170 pounds; married and has three children; color, severe secondary anemia; expression, anxious; mental state, typical neurasthenia, melancholic. Present trouble (in patient's own words): About eight months ago he began to introduce the soft rubber tip of a urethral syringe into the external meatus to allay a supposed inflammation, which gave him a

* Read before the Douglas Park Branch of Chicago Medical Society.

great deal of pain. After becoming more expert in introducing foreign bodies into his urethra he introduced a lead pencil lubricated with vaselin, this being followed later by a Christmas candle. His statements were misleading, inasmuch as he stated that the foreign bodies were introduced to allay an inflammation. (See confession of patient two weeks later.) The foreign body slipped from between his fingers beyond reach, and passed back into the membranous urethra. In attempting to extract the candle he forced it deeper back until the last attempt forced it up into the bladder. The accident occurred on Monday morning at 9 a. m. He returned to work Monday night, worked all night until early Tuesday morning, when in urinating he noticed a burning sensation. During Tuesday his desire to urinate increased until by Tuesday night he was unable to go to work and passed his urine every half hour, which caused him great pain in the region of the bladder. He consulted a physician Wednesday morning. Was referred to me for surgical attention Wednesday afternoon. He was unable to walk and had great tenderness over the bladder. Passed urine every fifteen minutes, followed by a few drops of blood. He was given one-half grain morphin for pain and was sent to hospital Wednesday at 8 p. m.

Patient is very anemic, nervous, gives fictitious name and address. Temperature, 101.8; pulse, 130. External meatus widely dilated, red, congested; pus exuding from meatus upon pressure. Patient denies any history of gonorrheal infection. A 38 French sound passes into the bladder from its own momentum. Cannot palpate foreign body with sound. Sound can be rotated in every direction and causes great pain. Glans penis swollen, congested and tender, prepuce elongated, edematous. Cystoscopic examination reveals very severe cystitis, the mucous membrane of the bladder being swollen, red and congested; posteriorly where the end of the candle was imbedded is a small ulcer. The blood vessels are dilated, engorged and congested. The mucous membrane is covered with thick tenacious mucus mixed with blood. Cystoscope shows foreign body lying obliquely in the bladder. Urine cloudy; specific gravity, 1030; quantity, 3 ounces; reaction faintly acid; contains albumin and mucus; microscopically, pus and epithelial cells, red and white blood corpuscles, bacteria and various urinary crystals.

Hot fomentations were applied to lower abdomen and perineum and the bladder was irrigated with hot saturated solution of boric acid every two hours through the night. Morphin $\frac{1}{4}$ grain P. R. N. Intern was instructed to irrigate bladder four times before patient came to operating room, allowing 15 ounces to remain in the bladder. He informed me that the largest catheter would not retain solution, but that it ran out around catheter. A medium sized rectal tube proved a complete success. This was clamped off, leaving 15 ounces of fluid in the bladder, the object being to elevate the fundus of the bladder so as to reduce the danger of entering the peritoneal cavity. A suprapubic cystostomy was done and patient made an uneventful recovery.

Confession of patient two weeks after operation: When about twelve years of age I noticed an itching around the head of my penis, to relieve which I began to scratch it. This finally became so bad that I was scratching it most of the time (evident cause elongated adherent prepuce) until I found that I got a great deal of pleasure from manipulating my penis. Before I knew it I was abusing myself, and, Doctor, I have kept it up ever since. I have tried to overcome this habit. I know I am different from other men; I am ashamed to look them square in the eye. I much prefer to be alone. I thought by getting married I could overcome it, but I was unable to do so. The habit is a fixed one. When I come home in the morning from my work my wife is busy around the house and rather than trouble her I abuse myself. To tell you the truth, Doctor, there is more pleasure for me to abuse myself than there is in the normal act. Why did I introduce the candle into my urethra? Of late I have noticed that my sexual powers were getting less active, and I found that by introducing a foreign body into the meatus that it not only increased the sexual excitement but also increased the sexual act, and, Doctor, it was during the act itself that the foreign body accidentally slipped beyond my reach.

When I suggested to Dr. Duff to report the case and to submit a contribution on the subject, it was primarily with a sense of diffidence and more or less of a consciousness of temerity that he consented to reopen a subject which I anticipated must have been illuminated by the contributions of the most distinguished men of our profession. A review of the literature, however, fails to impress one with the weight that should have been attached both here and abroad to the opinions and conclusions upon the subject, and consequently arises the thought that the theme is exhausted.

So poorly has the field been worked out that a farther investigation from an anatomic, physiologic, as well as a pathologic standpoint, seemed indispensable. Though we are convinced of the futility of any attempt to contribute with entire originality on the subject, as well as on the complications that may arise therefrom, yet, in hope of eliciting from those present a discussion which in some degree may help to enlighten our present knowledge, this paper is submitted to your consideration. It is our belief, with Spencer, that "only by varied iteration can alien conception be forced on reluctant minds," and it behooves the man who would contribute his mite to the progress of his profession to exhibit his ideas to the criticism of his peers, that they may be either advocated or condemned.

Realizing as we do that the conditions necessary to lodge a foreign body in the bladder, intentionally as it were, are primarily psychologic and secondly accidental; the pathologic phenomena in such cases may be properly assumed to have existed long before the accident took place and belong to the domain of psychology which is not our intention to discuss this evening. The very accident therefore is only one of the manifestations, a symptom if you please, of a condition that had existed long before the accident. The pathologic state, however, of this, as well as of similar cases, are local only, and very simple, indeed, because they are generally acute and of such nature as would manifest themselves from any irritation by any foreign body placed intentionally or otherwise in any muscular viscus lined by a mucous or serous membrane under ordinary circumstances. From the history of the case, the confession of the patient, the action of the muscles constituting the pre-vesicular region, as well as the course of the urethra itself, one should have no difficulty to comprehend that a force necessary to propel a foreign body of reasonable magnitude through the urethra until it is finally lodged in the bladder must act in the opposite direction, i. e., toward instead of away from the bladder, which is the normal function of the muscles of this region. That normally the functions of the muscles of the genitourinary tract are distalward is abundantly demonstrated by the fact that a foreign body such as a urinary calculus, if not too large, will eventually, in a good many cases, be expelled through the meatus urinarius externus. Furthermore, the very act of urination, or seminal discharge at the time of copulation, proves the action of these muscles. It is for this reason that we wish to exhibit by original dissections the various structures of that region whose normal actions must be overcome,

if one would lodge a foreign body in the bladder, introduced through the meatus urinarius externus. Of all the structures of the genitourinary region the erector penis and the accelerator urinæ are the principal muscles whose normal physiologic action must be overcome if the foreign body is to pass beyond their control. To be sure, erection results from the distention of the venous plexus with blood due to nervous irritation originating in the part itself, or derived from the brain and spinal cord, which is communicated to the penis by the pudic nerve, ramifying in the vascular tissue. Even when no nervous irritation takes place the influx of blood alone is sufficient to cause enlargement and turgescence of the penis, but then the erection is not complete, nor can it be maintained for any length of time unless some force acts upon the veins, causing a sufficient compression, thereby preventing the further influx of blood or stopping the efflux. Both these functions are performed by the alternate contraction and relaxation of the two muscles above named. It is, however, necessary to understand the exact origins and insertions of these structures before we can derive definite conclusions as to their action. Ordinarily a muscle is attached to two objects, and by its contraction lessens the distance between them, and perchance compresses another structure, which may be located in its close proximity or enveloped by it. Now that part of the muscle which is attached to the more fixed point of these objects is named the origin and is usually the proximal end, while the one fastened to the more movable object, which is the distal end, is called the insertion. The terms, however, are entirely physiologic and largely conventional, since there is still a great deal of difference of opinion as to which of the two is the more fixed, and hence entitled to the name origin. Furthermore, the action may take place just as frequently from one place as from the other, from the origin or from the insertion. In the former the action is known as direct and in the latter indirect or reversed action. We must, however, be admonished that both actions can be demonstrated only in those muscles whose origins and insertions are more or less fixed, i. e., both ends attached to bony or cartilaginous structures, the rectus femoris, for instance, while its direct action is to extend the leg and by the further continuance of its contraction to flex the thigh, the reversed action of the same muscle is to help hold the pelvis erect, and by its continued action from below assists to flex the pelvis. In the case, however, of the levator palpebræ superioris direct action only can take place, since the origin is from the lesser wing of the sphenoid bone, a very fixed point indeed, and insertion into the tarsal cartilage of the upper lid, which is movable. It is clear, therefore, that the action of this muscle can only take place from its origin, i. e., direct, it being the fixed point. From the above constant and normal actions of muscles at large we may, with a sufficient amount of certainty, apply the same deductions to the two principal muscles of the genitourinary tract, erector penis and the accelerator urinæ, the first also known as ischio-cavernosus. The name alone sufficiently signifies its attachments and action, because it originates from the inner surface of the tuberosity and ramus of the ischium, and is inserted into

the sides and under surface of the crus penis. The origin is, therefore, fixed, as it were, and the insertion movable. Hence the action of this muscle can only be direct. It is in consequence of its attachments and possible direct action that it is able to compress the crus penis, thereby retarding or preventing altogether the immediate return of the venous blood, that it serves to maintain the organ erect. Hence its synonym, *erector penis*. The second also is called *ejaculator urinæ*, *ejaculator seminis* and *bulbocavernosus*. This muscle originates from the central tendinous point of the perineum as well as from the medium raphe and its fibers are inserted on the dorsal surface of the penis. In order to reach that place of insertion it is evident that it must travel outward and upward, encircling or covering the bulb and adjacent parts of the corpus spongiosum, and finally unite with its fellow of the opposite side by a central tendinous expansion. It is quite a broad layer of muscular tissue and envelops both the corpus spongiosum and corpora cavernosa, occasionally even to such an extent that the anterior fibers reach as far as the os pubis. The last-mentioned fibers of this muscle always terminate by a distinct tendinous expansion, which covers the dorsal vessels of the penis. Here we also see that the muscle is capable of contracting by direct action only, since its origin, the central tendinous point of the perineum, serves as a fixed point of support. On the other hand, when this muscle contracts it must compress the bulb and the corpus spongiosum, thereby narrowing the lumen of the urethra, which is situated in the spongiosum. While the anterior fibers will compress the vessels on the dorsum of the penis, retarding or preventing the efflux of venous blood and influx of arterial blood, thereby maintaining erection. It will be observed that the action of both muscles being direct, i. e., from their origin toward the insertion, it follows that they will tend to drive any substance out of the urethra, away from the bladder, through the meatus urinarius externus. It is evident that to introduce anything into the bladder sufficient force must be employed to overcome the normal action of these muscles. In other words, the action of the muscles must of necessity be reversed, acted against, indirect action.

817 Ashland Boulevard.

SURGICAL TREATMENT OF EXOPHTHALMIC GOITER.*

CARL E. BLACK, A.M., M.D.

JACKSONVILLE, ILL.

While I fully appreciate the honor of having been invited to take part in this important symposium, I feel that the surgical treatment of exophthalmic goiter deserves to be supported by some one who has had greater experience in the surgery of this organ than is possible for a general surgeon situated as I am. One cannot read the literature of the development of surgery of the thyroid during the past ten or fifteen

* Part of a Symposium on Exophthalmic Goiter, before the Illinois State Medical Society, May 20, 1909. The other papers and the discussion appeared in *THE JOURNAL* for September, page 243 to 261.

years without realizing that it is the story of the most wonderful scientific and technical achievement. The eminent colleagues who have preceded me have so thoroughly described the disease and its medical treatment that I will confine what I have to say entirely to the surgical considerations.

In dealing with this disease we must necessarily study methods of treatment from the standpoint of results. The first question which presents itself is the natural history of the disease. What have we to expect in cases which have no treatment? It is pretty well determined that when the disease remains untreated it is usually progressive, although some authors claim that fully 25 per cent. of all cases will recover without treatment or in spite of treatment. It is difficult to determine these facts. Many cases are overlooked and a diagnosis is never made, while many others die of some intercurrent affection before the natural course of the disease is fully determined. In fact, it has been too much the habit of physicians to overlook this disease entirely in its early stages, or even in its later stages, when all of the characteristic phenomena were not present. We must remember that one or two of the four principal manifestations of exophthalmic goiter may be absent and yet the diagnosis may be perfectly plain if the signs and symptoms are properly analyzed. Too many of these cases are treated for heart disease, intestinal toxemia or nervous disease. This is, no doubt, partly due to the use of the unfortunate term, exophthalmic goiter. It would be far better if there could be a general adoption of the term "thyrotoxicosis," used by Kocher. At least 75 per cent. of these cases are progressive and will terminate unfortunately unless some form of treatment is instituted by which the intoxication from the thyroid can be stopped or modified.

What can be said of the prognosis of cases treated medically? I fail to see how one can read the literature of the disease without being impressed with the great inefficiency of all forms of medical treatment, including electricity and *x*-rays. With the one exception of iodine, no drug seems to have any special affinity for the thyroid gland or influence on its action. Undoubtedly the greatest good accomplished by medical treatment is due to the dietetic, hygienic and prophylactic regime. Patients are put to rest; their diet is regulated; they are placed in better hygienic and climatic surroundings and given the general tonic influence of baths, and as a result they are temporarily better. If they happen to be among the 25 per cent. of cases which would recover spontaneously, they become entirely well, and the result is unjustly credited to the form of treatment. There are three chances out of four, however, that the disease will be progressive, and the benefit from these general measures will only be transient. Such measures are fully as applicable to the surgical as to the medical, or any other form of treatment. A just criticism of the treatment of these cases by many surgeons has been a failure to appreciate the value of these measures in properly preparing patients for operation and protecting them during and after operation. As a matter of fact, the majority of the members of the medical profession are to-day unadvised as to the results obtained by well devised and applied technique.

on patients properly prepared. It is only the occasional physician who is informed as to the variety of operations which are now done for patients suffering with exophthalmic goiter. Like herniotomy, appendectomy, surgery of the stomach and liver, the technic of operations on the thyroid has been undergoing a wonderful evolution, until now its results are as brilliant as in any other field. The earlier operations in this field were not well done. Too much or too little gland was removed in some cases and in others the parathyroids were removed or their circulation disturbed. Patients were operated on in advanced stages, who already had a thoroughly broken down nervous system, dilated heart, weakened blood vessels or debilitated muscles, and in fact were unsuitable for any kind of successful surgery. Anesthetics were poorly given; patients were poorly prepared; little or no attention was paid to the psychic questions involved; glands were removed when only the blood vessel should have been ligated. The result was that the early operations of all surgeons and most of the earlier attempts at surgical treatment were attended by a comparatively small percentage of improvement and a high mortality. The results in many cases were unsatisfactory and in some cases, where too much was removed or the parathyroids were disturbed, another serious disease was substituted for the one for which the operation was made. All these things have had a very profound influence on the mind of the members of the medical profession and it will take many years of preaching and teaching, combined with a general exhibition of successful surgical results, before the medical man will cease to hesitate to recommend what he considers a very formidable procedure of doubtful value for an incurable disease.

The present status of the surgical treatment of goiter, and especially of hyperthyroidism, probably represents, more completely than almost any other surgical achievement, the prolonged conscientious application of several master minds. While the great body of the profession have been trying this and that new remedy or new plan of treatment, Kocher and a few kindred spirits have kept up a constant attack from every direction until to-day the great Swiss surgeon is able to report a list of 3,000 successive operations on the thyroid with only three deaths to the 1,000. Do we fully appreciate what that means? I fear that those who are still relying on drugs, hygiene and dietetics, and telling each other and their patients old-time stories about the numerous failures and disastrous results of surgery in this field, have failed to keep abreast of the times. Too many of those who attribute the whole group of phenomena to the nervous system fail to appreciate the source of the intoxication by which the nervous system is affected. How anyone can study the anatomy, physiology and pathology of the thyroid without being forced to the conclusion that the basis of any rational treatment must consist in preventing the appropriation by the economy of poisons which can have no other principal source of supply than a diseased thyroid gland, is almost past understanding. That this poisoning finds expression largely in a disturbance of the nervous system does not call for treatment of the nervous system as a primary part of the problem any more than such a patient should call on the ophthalmologist to have

his eyes pushed back or should expect the specialist in diseases of the heart to relieve the tachycardia by the administration of digitalis. The same might be said of the other prominent symptoms of Graves' disease, and, in fact, we all know that far too often such patients are treated for some one or more of the prominent symptoms until the accidental discovery of an enlarged thyroid or the appearance of exophthalmus or tachycardia reminds the doctor that he had failed to make a diagnosis until late in the disease. In this disease, as in every other, its successful treatment depends much upon an early diagnosis, and it is not necessary to postpone such a diagnosis until all the cardinal signs and symptoms are present. One or two may be lacking and a positive diagnosis of hyperthyroidism be made. In some cases there may be little or no evidence of thyroid enlargement and yet the diagnosis be perfectly plain. As soon as a diagnosis is made we should lose no time in instituting curative treatment. These forms of treatment may be considered—medical, surgical and serum. Hygiene and dietetics are not included in specific medical treatment because they have the same applicability to the surgical or serum treatment as to the medical. The surgeon who fails to give his patient the advantage of proper hygienic and dietetic treatment will fail to do his whole duty.

After a diagnosis of exophthalmic goiter is made, ninety-nine times out of a hundred, the doctor will "try medicines for a while," and if he combines these with well-directed hygienic and dietetic measures his patient may improve for a time, or, if the patient be one of the 25 per cent. which will recover spontaneously, he will get well. The problem is very similar to that of appendicitis, and the men who treat the one with medicine use drug treatment for the other, notwithstanding the fact there is no proof that either disease was ever cured by drugs. Abandonment of medical treatment in exophthalmic goiter is slower than in appendicitis, because a fatal issue is usually less rapid, although the percentage of spontaneous recoveries is much smaller and the successful operative treatment of exophthalmic goiter is more recent than that of appendicitis. I take it to be the serious duty of every physician to thoroughly study the surgical methods now in vogue and the results obtained by recent surgical treatment.

C. H. Mayo has reported 405 cases operated on for hyperthyroidism, with 19 deaths. Four of these deaths occurred in the first 16 cases, a mortality of 25 per cent., and three occurred in the next 40 cases, a mortality of 10 per cent. There were 12 deaths in the last 349 cases, a mortality of 3.4 per cent. In 97 of these cases the operation consisted of ligating the superior thyroid arteries and veins. This operation had a mortality of about 1 per cent. (1 case in 97). In 295 cases one lobe and the isthmus of the gland were removed, with a mortality of 18 cases, 7 of which occurred in the first 46 operations. In 14 cases in which one lobe of the gland was removed it was necessary to make a secondary operation for ligating the arteries and veins supplying the remaining lobe. Those requiring secondary operation were attended with as satisfactory results as other cases.

A. Kocher, writing in Keen's Surgery of the results obtained by his father, Theodore Kocher, of Berne, says: "The good results of operative treatment are so prompt that patients are able to return to their work in a relatively short time."

George Crile, writing on this subject in the *Annals of Surgery*, June, 1908, says:

We may accept as proven the fundamental proposition that if a sufficient amount of the thyroid gland in Graves' disease be successfully excised relief or cure will follow. Whether the relief or cure be complete or incomplete is dependent upon the correct or incorrect judgment in estimating the amount of gland tissue to be removed. In my earlier cases I frequently erred on the side of removing too little. The relief that follows the removal of a sufficient amount of gland tissue is comparable to the relief from withholding drugs which cause excitation. The extraordinary subjective relief is expressed largely in psychic terms. It resembles most the phenomena of good news in contrast with bad. Buoyancy supplants gloomy depression. The objective signs of improvement follow later. The psychic and metabolic phenomena are closely interwoven.

The treatment is indicated in all cases except those with degenerated heart muscles, irregular pulse, low blood pressure or attacks of delirium.

Kocher has operated on the thyroid gland 3,000 times with a mortality of only three cases in each 1,000. He reports a mortality of 4 per cent. in his last 200 operations for exophthalmic goiter and says that of those operated on 85 per cent. made complete recoveries. This leaves 10.5 per cent. which were either not benefited by the operation or only partially relieved. Similar results have been achieved by a comparatively large number of operators, and have been obtained by improved operative technic which has been largely developed by Kocher, Horsley, Halstead, Eisberg, Mayo, Crile and others, and as a basic principle consists in approaching each case in an individual way. If the patient is an advanced or rapidly developing case, in which attacks of tachycardia and psychic excitation have become frequent and are likely to be induced by the preparation for operative procedure, the patient is put upon a regime which will limit and modify the liability to such attacks. Here is where the surgeon makes use of the dietetic, hygienic and prophylactic means at his disposal. Crile operates on some cases without the patient's knowledge in order to avoid these phenomena. He secures the consent of the patient to operation whenever in his judgment the proper time has arrived. The plan is described as follows by its author:

On entering the hospital a non-operative routine treatment is first employed. The object of this treatment is that of minimizing the disease phenomena and studying the case. In addition to the routine consisting of baths, diet, etc., every morning a trained anesthetist who is tactful, goes through the complete form of administering anesthesia under the guise of inhalation treatment. On the ether mask are dropped solutions of volatile oils. . . . Within a few days or a week we usually recognize the cycles of the disease. In the optimum portion of this cycle operation is performed. The evening prior to the operation the patient is given bromids; in early morning if conditions are favorable for operation, a hypodermic of morphin is given. The shades of her room are kept drawn and absolute quiet maintained. In this manner the patient is brought as nearly as possible to a negative psychic state. The operation is done at an early morning hour. At this time the anesthetist repeats the so-called inhalation treatment. . . . Gradually the ether is added drop by drop and imperceptibly the patient passes into the second stage of anesthesia.

In severe cases one or two preliminary ligations of the superior thyroid arteries are made in order to limit the vascularity of the gland and to reduce the amount of thyroid poison taken into the general circulation. This may be preparatory to other ligations or the removal of gland tissue. In pronounced cases, with good hearts, a unilateral excision of the larger and more vascular half of the gland, including the isthmus, is made. In many cases the ligation of two or three arteries and veins give equally good results with removal of half of the gland. The removal of more than half of the gland should not be considered except in rare cases. The operation for hyperthyroidism is more difficult than the ordinary operation for goiter because of the greater vascularity of the gland, but these difficulties only demand a more careful technic, as will be seen by the above statistics quoted from two well-known sources.

To summarize briefly: Cases of exophthalmic goiter in which reasonably early diagnosis is made, that is, before there is irremediable degenerations of the heart muscles and before the nervous system has become permanently unstable by the violence or duration of the thyroid intoxication, can be permanently cured in at least 85 per cent. of cases by a properly planned and properly executed surgical operation. The proper treatment by surgery serves to reduce either the hypervascularity of the thyroid or to reduce the amount of thyroid tissue directly. The character and extent of the operation will depend on the case. In one case only one principle artery and vein at the upper pole may be ligated; in another case all the vessels in the region may be ligated; in a third case the larger half of the gland, together with the isthmus, may be removed, while in certain extreme cases Kocher has planted parathyroids into the shin bone in order to be able later to remove the whole thyroid. Secondary operations in this disease should be frequent, because in a certain number of cases it is impossible to sufficiently reduce the hypervascularity at one operation without subjecting the patient to too much risk. After ligating the vessels on one side or removing half the gland it may still be necessary to ligate one or more vessels on the other side. Patients must be selected with care and those that have already undergone degenerative changes in the muscular, circulatory and nervous systems which would make any operative procedure impracticable should certainly not be advised to have an operation for goiter, and the responsibility of advising operation sufficiently early is directly on those who are in general practice who are consulted early in the cases. In cases subjected to operative treatment at the proper time the mortality is only about 5 per cent., while the chances of a permanent cure are 85 per cent. To quote the words of Lewellys F. Barker, "International medicine up to this time has been utterly unable to obtain results comparable with these." It is the serious duty of every practitioner to become thoroughly informed regarding surgery of the thyroid. The results of these operations are uniformly good and are just in proportion to the reduction of the hypervascularized thyroid tissue. The only thing which can disturb the present firm foundation and rapid adoption of the operative treatment for hyperthyroidism as the safest, most rational and most successful

plan is the development of a serum treatment which will neutralize the thyroid poison.

Since the recent accomplishments of Rodgers and Beebe, of New York, it seems altogether possible that just as the surgical treatment is placed on a firm foundation it will be swept aside by a more successful and more easily applied serum treatment. This is certainly a consummation devoutly to be desired; but until the serum treatment is sufficiently developed for general adoption, we must look to early surgical operation as the most rational method of combating exophthalmic goiter.

The following irregular case of exophthalmic goiter is reported to illustrate the effect of operative treatment:

B. S., single, aged 23 years, teacher in the country; home surroundings comfortable and environment good. She had been teaching about five years. Patient was first seen August 1, 1907, complaining of a general dermatitis which had resisted all attempts at successful treatment and had existed for about one year. It began with itching and burning; then very minute vesicles appeared, the tops of which would be rubbed off. New vesicles would appear irregularly, and between these would be patches of dry sealy eruption. The process began on the outsides of the arms and legs. After this eruption had existed about nine months she began to notice a fine tremor in the hands and later in other muscles, and it was not long until the heart's action began to be rapid. Patient feels sure that she did not notice any undue action of the heart until the tremor had existed some time. Soon she began to be restless and nervous, could not get to sleep at night for several hours and then would wake easily; would cry at every little thing which went wrong and could not concentrate her mind on her work and could not study. She finally had to abandon her work. Shortly before calling on me she had her attention called to a moderate enlargement of the thyroid. At this time the pulse was 120 to 150, there was slight exophthalmus and a slight but constant movement of the left eye. While her usual weight was 140 pounds, she now weighed only 117, notwithstanding the fact that she had an enormous appetite for several months. The bowels were constipated. On account of the uncontrollable appetite, vomiting of food occurred at times. There was moderate dyspnea on exertion and great feeling of weakness and fatigue. On August 13, 1907, the enlarged right lobe of the thyroid and isthmus were removed. The operation was without special incident and healing was rapid. The subsidence of the symptoms due to the hyperthyroidism began soon after the operation and has been continuous but not rapid. The nervousness and sleeplessness were the first symptoms to improve. Almost immediately following operation sleep was normal and there was a return to normal appetite and an increase in weight to 156 pounds at the end of three months and then a reduction to about 140 pounds, which is still maintained. The subsidence of the rapid pulse and tremor were more gradual. The dermatitis was the last symptom to yield. She has been teaching school for a year and seems perfectly well.

BIBLIOGRAPHY

The following literature is of interest in studying the surgical treatment of exophthalmic goiter:

- The Thyroid and Parathyroid Glands, by Hubert Richardson.
- Diseases of the Thyroid Gland, Keen's Surgery, by Albert Kocher.
- The Treatment of Disease, by Reynold W. Wilcox.
- Diseases of Metabolism (Trans.), by Julius Salinger.
- The Diagnosis of Exophthalmic Goiter, *Jour. A. M. A.*, Oct. 12, 1907, vol. xlix, p. 1235, by Lewellys F. Barker.
- Medical Treatment of Exophthalmic Goiter, *Jour. A. M. A.*, Oct. 12, 1907, vol. xlix, p. 1235, by Robert B. Preble.
- Thyroidectomy for Exophthalmic Goiter, *Surg., Gynec. and Obstet.*, vol. viii, p. 279, March, 1909, by A. H. Ferguson.
- Surgical Aspects of Graves' Disease with Reference to the Psychic Factor, *Annals of Surg.*, vol. xlvii, p. 864, June, 1908, by George Crile.
- Modern Surgical Treatment of Exophthalmic Goiter, *ILLINOIS MEDICAL JOURNAL*, vol. xiii, p. 157, February, 1908, by A. P. Heineck.
- Surgical Treatment of Exophthalmic Goiter, *Surg., Gynec. and Obstet.*, vol. v, p. 623, December, 1907, by A. P. Heineck.

- Surgical Treatment of Exophthalmic Goiter, Jour. A. M. A., vol. xlix, p. 1240, p. 1240, Oct. 12, 1907, by Albert Kocher.
- Goiter: Its Surgical Treatment Based on Four Hundred and Seventy-five Cases, ILLINOIS MEDICAL JOURNAL, vol. xi, p. 327, October, 1907, by C. H. Mayo.
- Results of the Surgical Treatment of Exophthalmic Goiter, Annals of Surg., v. xliii, p. 335, March, 1906, by B. F. Curtis.
- Surgical Treatment of Exophthalmic Goiter, Jour. A. M. A., vol. xlvii, p. 665, Sept. 1, 1906, by F. J. Shepherd.
- Thyroidectomy and Exophthalmic Goiter, Annals of Surg., vol. xliii, p. 33, July, 1905, by Frank Hartley.
- Report of Operative Treatment of Graves' Disease, Jour. A. M. A., vol. xli, p. 228, July 25, 1903, by T. C. Witherspoon.
- Operative Treatment of Exophthalmic Goiter, Annals of Surg., vol. xxxvi, p. 398, September, 1902, by Emmet Rixford.
- Operative Treatment of Exophthalmic Goiter, ILLINOIS MEDICAL JOURNAL, vol. xlix, p. 372, February, 1900, by Carl Douffner.
- Mortality of Operations Other than Strumectomy in Cases of Exophthalmic Goiter, Amer. Jour. Obstet., vol. lli, p. 367, September, 1905, by B. C. Ilirst.
- Total Extirpation of the Thyroid Gland, Jour. A. M. A., vol. xxxvii, p. 185, July 20, 1901, by G. F. Cott.
- Results Obtained by the Operation of Partial Thyroidectomy in Eight Cases of Graves' Disease, Med. Rec., vol. liv, p. 217, Aug. 13, 1908, by J. A. Booth.
- Surgery of the Thyroid Gland, N. Y. Med. Jour., vol. lxxxiii, p. 280, Feb. 10, 1906, by Max Ballin.
- Some Experiences in the Operation of Thyroidectomy, Partial and Complete, Surg., Gynec. and Obstet., vol. iii, p. 272, August, 1906, by F. J. Shepherd.
- Partial Thyroidectomy, Inter. Jour. Surg., vol xvii, p. 304, October, 1904, by A. B. Andreson.
- Personal Experiences in the Surgery of Simple Types of Goiter, Ther. Gaz., vol. xxxii, p. 846, Dec. 15, 1908, by J. M. Wainwright.
- Surgical Treatment of Goiter, Amer. Jour. Med. Sci., vol. cxxxiv, p. 183, August, 1907, by M. B. Tinker.

SURGICAL TREATMENT OF APPENDICITIS—THE PUS APPENDIX.

ADDITIONAL DISCUSSION OF THE PAPERS OF DRs. COLLINS AND GREEN, PUBLISHED IN THE OCTOBER ISSUE, PAGES 375-388.

Dr. S. A. Oren, of Lewistown: I am very glad to have heard these papers and the discussions on them. I rise simply to call attention to one or two points. If we, as country physicians, listened carefully to what has been said by our great surgeons and followed the advice given, what would we do? We must not give cathartics to these patients. Dr. Harris says don't give a cathartic before the diagnosis is made. If you are called to see a patient with pain in the abdomen, "*don't give a cathartic; don't give opium until you have made the diagnosis.*" That is what we are told. Imagine yourself called to the country to see a patient who went to bed feeling well, but awakened by vomiting and cramps in the lower part of the belly. You find tenderness all over the abdomen, perhaps, and a bloated condition. We are told we must not give any opiate; we must not give any cathartic. There is not a physician in the country who has not been confronted by that condition time and again. You give the patient a cathartic and a hypodermic injection of morphin, and tell him you will be back in the morning. The next morning the patient is up and feeling well. He had simply indigestion. He had eaten something for supper a little late that did not agree with him, and all that he needed was a little physic to afford relief. When our great surgeons tell us the whole truth, they will tell us that one-fourth or one-fifth of the cases operated on for appendicitis have nothing the matter with the appendix. (Laughter.) Yet they have told us here that the diagnosis of appendicitis is easy. I have been called in consultation with some good surgeons. I was called in consultation with a physician in Chicago to see a relative they were treating. I diagnosed appendicitis. The surgeon looked the case over and concurred with me. An operation was performed a short time after, but there was no appendicitis. (Laughter.) I could go on and cite case after case, similar in character, in which mistakes in diagnosis have been made, and it is all nonsense to say that we should not give a cathartic or a dose of opium or morphin when a patient is suffering intensely until the diagnosis is made for fear of masking the symptoms. (Applause.)

Dr. Collins (closing the discussion on his part):—Dr. Deaver, during his remarks, placed no time limit on the use of the scalpel, but before he completed his remarks he had placed a limit and admitted that his mortality increased after fifty hours. The only difference between us is that he sets the limit farther ahead than I do. Dr. Deaver condemned the use of the thermometer. I still insist that the record of the thermometer is valuable during the period where I advised its use, namely, the first thirty-six hours. The cardinal symptoms of a beginning appendicitis are pain, vomiting, tenderness, and a rise in temperature. After the appendix has become perforated, I will agree with Dr. Deaver that the record of the temperature is of less value.

Dr. Harris condemns the dividing of an attack of appendicitis into periods of twenty-four hours. How did we come to so divide these attacks? During the few years following the inauguration of the surgical treatment of appendicitis surgeons, in tabulating their results, found that patients operated on during the first twenty-four hours of the attack got well. After that time the mortality began to increase up to the fifth day. And this is the way this division of appendicitis into periods came into the literature and discussions. I do not believe that these tabulated results have yet lost all their value. My own experience teaches me that the conclusions drawn from them are still true. Perhaps, when my experience has equaled that of Drs. Deaver and Harris, I may also lengthen the time during which I would operate for appendicitis or peritonitis, but that time has not yet arrived. We should keep in mind that our primary object should always be to save the patient's life, and I am very sure that if all the surgeons of this country began to operate during the first fifty hours of the peritonitis that the mortality following operations for appendicitis would be very greatly increased.

Dr. Fuller thinks that those surgeons who advise against the use of opium until the diagnosis is made have not yet suffered from appendicular pain. I may say in reply that I have had appendicitis and have had my appendix removed, and the only morphin or opium that I received during the entire attack was a preliminary dose of 1/6 grain of morphin and 1/100 grain of scopolamin as a preliminary before the anesthesia. It is refreshing to hear Dr. Billings, a medical man, give us still another indication for the surgical treatment of appendicitis.

Dr. Green (closing the discussion):—In regard to the administration of opium, if one resorts to gastric lavage and puts on an ice-pack, oftentimes he can get along without the use of an anodyne, because it is the peristalsis and distention of the abdomen with gas that cause pain. With gastric lavage and the application of the ice-pack, peristalsis is done away with, and you can get along very well without the use of opium.

REPORT OF A CASE OF BRAIN TUMOR, WITH SPECIMENS OF BRAIN AND TUMOR*

C. B. HORRELL, M.D.

GALESBURG

The patient was a male, age 47. His early life was on a farm. The family history was good. He was married, father of two very healthy girls, 14 and 11 years old. He has always been a healthy man. In 1889 he fell from a scaffold about 12 or 14 feet and dislocated his spine, which he reduced by himself upon getting out of bed some ten days after the injury. At the time of his falling from the scaffold he alighted on a pile of bricks.

* Read before the Fifty-Ninth Annual Session of the Illinois State Medical Society, Quincy, May 19, 1909.

There was no injury to the head noticed by the family or attending surgeons. One leg became partially paralyzed some time after, but by bathing with hot water and massage the sensation and motion were restored and a physician was not called. No trouble of a serious nature occurred, but for a few months he called his left leg his game leg. He remained quite well and for about 13 years attended to his business of a hardware dealer and plumber. He then took a position as traveling salesman for tin-plate works and hardware specialties for about four years.

His first indisposition, in April, 1906, was entirely in the lumbar region, about the seat of injury 17 years before. It was simply pain, without effect upon his locomotion. It did not last long and was diagnosed "lumbago" by the physician called. He seemed to recover generally, but had some weakness of the spine, and another physician examined the urine and said there were symptoms of Bright's disease, but this did not develop. He still continued his work on the road and in June, 1906, he had an attack of serious sickness of the stomach and congestion of the brain and severe headache, and these attacks recurred in from three to five weeks and gradually became worse. His face would become very red, almost purple; eyes congested, and an epileptoid condition appeared without convulsion. He never became unconscious in these attacks till February, 1907.

In the autumn of 1906 the first symptoms of interference in walking was noticed, gradually growing worse. He was able, however, to walk from his home to the downtown district, a distance of five blocks.

In July, 1906, while still on the road, and after his first severe gastric and headache attack, and following the second similar attack, he noticed marked failure of eyesight, and within a fortnight had his eyes fitted with glasses three times, each fitting seeming to relieve him for a day or two. The eyesight gradually failed, and in February, 1907, with his attack of vomiting and headache, he for the first time became unconscious and remained so for about 48 hours. After this date, from three to five weeks apart, similar attacks of vomiting, headache, and unconsciousness would occur, lasting almost invariably about 48 hours. In each attack, just preceding his return to consciousness, there would be very free diaphoresis, some pallor of the face, and gradual return of consciousness. Some improvement of vision seemed to exist as compared with the vision just preceding each attack.

From August, 1900, there was gradual failure of eyesight and the eyes had a peculiar staring, vacant look. After the severe attack in February some hesitancy and difficulty in speech was noticed for the first time. After recovery he would talk well, but difficulty in speech gradually grew worse as the case advanced. He had little or no medical attention from August, 1906, to February, 1907, being mostly under the esthetic care of one of our dearly beloved co-laborers of the osteopathic cult. Please bear this in mind as to time and treatment. In February the first severe or unconscious attack called for a reputable physician of our city, who satisfied himself that the probable trouble was specific, and

made a diagnosis of "gumma," and put him on large doses of iodids, which was continued for eight to ten weeks with no relief.

I was first called into the case the latter part of April, 1907, and found the patient just recovering from one of his unconscious attacks and able, with the assistance of his wife, to give me very closely the above history. At the time the patient was under no physician's care, but was very ably attended by his wife, who was a very good nurse, and also very intelligent in a general way, and especially well posted with regard to cerebral geography and symptoms likely to occur from tumor pressure or traumatism. Many of her close questionings were almost embarrassing to an ordinary practitioner, of which large aggregation I am simply a unit. I found much gastric disturbance had existed during the month previous to my first call and I was satisfied that much of the stomach trouble was the usual result of full dosage of the potassium iodid. Upon its withdrawal and administration of strychnia and stomachics this symptom disappeared, save at such times as he had his unconscious attacks. At this time he was almost blind, could discern daylight from darkness, and could tell when the gas was lighted in his room. Once or twice he said he could dimly outline my face and body at a short distance.

In May, 1907, he described the dress of his wife as blue, the last glimpse of color ever admitted. In the few weeks following, and especially after one of his long continued epileptoid spells, he could dimly see the outline of anyone passing before him, but after September, 1907, he was totally blind to the date of his death, July 16, 1908.

In assuming charge of the patient I did not make a diagnosis for several days, and not until Dr. R. C. Matheny made an ophthalmoscopic examination and report negative as to syphilis and a fine picture of choked disc. I then ventured the diagnosis of a basal brain tumor and gave the opinion that it was non-operative. By my first prescription and getting the patient's stomach in good condition I seemed to win confidence and an opportunity of studying his case for over a year, about 15 months, and found it of much interest combined with mystery.

In July, 1907, Dr. J. F. Percy was called in consultation as the surgeon, and he agreed with me in the main in diagnosis and prognosis, with the exception of saying that possibly a large trephining might expose the trouble and relief be found, but it was so uncertain and the possibility of not withstanding the shock so great that the operation was objected to by the wife and abandoned. The patient said that percussing the head caused a little pain. I am not absolutely certain, but my recollection is that the pain was complained of when the percussion was on the opposite side of the head to the location of the tumor, according to the findings of the autopsy. Dr. Percy will probably remember. I have since wondered if the sensation might have been by *contrecoup*.

I was making calls only once or twice a week—sometimes at longer intervals between visits—and could see that he was failing in his co-ordination and ability to walk, but was eating and sleeping well, and was

hopeful of my treatment, as there was (save at his bad spells) a comfortable degree of good feeling. In October, 1907, Dr. Hugh T. Patrick of Chicago saw the case with me and gave about the same diagnosis as I have already referred to, that of brain tumor of some kind, probably malign, and possibly at the base of the brain; at least, brain tumor and non-operative.

In the short time allotted to this paper it is impossible for me to enter into the etiology or pathology of brain tumor, nor to undertake a classification of them. I have not the special qualifications for such an undertaking anyway, but hope these topics will receive some consideration in the discussion. My object is to give as plain a history of this, to me, very interesting case, which is not, as I see it, a classical case in symptomatology, and yet the postmortem exhibit is specifically so. From Church and Peterson I quote briefly: "Of all brain tumors, tubercle furnishes the largest proportion, and sarcomatous growths are next in frequency. Usually they present the distinctive and important character of being more or less encapsulated, and sharply separated from the brain tissue, from which they can therefore, if accessible, be easily enucleated. As a rule they are outgrowths of the cranial dura, or periosteum, but the majority of them are situated in the basilar region involving the brain axis. They are of rapid growth, and in a given case furnish pronounced, persistent and uniform symptoms." My case you will observe did not. There was some uniformity, but not persistent symptoms, especially as to vomiting.

Glioma is peculiar to nervous structure and is an infiltrating tumor, non-operable from its nature, and carcinomata are usually found within the brain substance through metastatic process from a primary cancerous growth in other organs—the breast, orbit, etc.—and are very vascular and practically inoperable. With regard to the eye symptoms in the case in hand, I had the examination made for the purpose of excluding or proving existing syphilis, as well as hoping for aid in locating the pressure. Church and Peterson say: "It must be borne in mind that vision may not be greatly disturbed when the discs are distinctly choked and their examination should never be neglected." This general symptom of brain tumor is very constantly found in growths involving the cerebellum, corpora quadrigemina and the brain axis. It therefore has slight localizing value and should be employed for this purpose.

Attacks of vomiting, usually called cerebral, without fermentation and nausea, are common. In the case before us there was always fermentation and the breath most foul and offensive, and no vomiting occurred except at intervals of three to five weeks, and food was taken with impunity and relish. Vomiting, like choked disc, is most frequent in tumors involving the cerebellum, especially the middle lobe and the corpora quadrigemina. This symptom in my patient was an indication for diagnosis and localizing the tumor.

In a case of suspected brain tumor a number of problems present themselves: (1) Is there a tumor? (2) Where is it located? (3) What is its size? (4) What is its nature? and (5) Is it operable? This

proposition, therefore, to me, an ordinary "Internal Medicine" man, was a somewhat serious matter for consideration. Our best special authorities assert that above 90 per cent. of brain tumors are inoperable, and, unless growth be of specific character, but little improvement may be anticipated through therapeutic agents. Please note again that from August, 1906, to February, 1907, the patient had no scientific attention and was entirely under the care of an osteopath. Previous to this time he had been seen by a regular physician only once or twice, which in an apparently healthy man gave no opportunity for study and serious diagnosis. The time lost from August, 1906, to February, 1907, I think was the crucial period in this history, and, had he fallen under the charge of a neurologist, his tumor would probably have been located and an operation have saved his life and placed him with the specially favored 7 per cent. to 10 per cent. of operable cases.

The lateness in the history of this case of a call of a regular or special physician, with the incomplete history and far advanced pathological condition, with the eye symptoms, vomiting and absence of serious extremity paralysis, I believe, are largely accountable for the surprise which the autopsy gave me and my associates, as it exposed a large tumor, having its origin from the dura, displacing a vast area of the cerebrum by pressure. It would have furnished a beautiful case for operation if properly located early in its history, and would have made it impossible for me to present this most interesting specimen for your inspection and discussion.

Under the circumstances I believe all was probably done that could be accomplished at so late a date in the case history. But may we not learn a lesson of study and take care to immediately refer all cases of suspected brain tumor to a neurologist and to a sanitarium where competent and specially experienced men may assume the responsibility and offer relief if it can be secured? Care in a diagnosis is, therefore, the lesson hoped for in this report.

The pathological report of tumor by Dr. Peter Bassoe of the Neurological Society of Chicago is an endothelioma, with concretions called psammoma.

DISCUSSION.

Dr. Frank P. Norbury, of Jacksonville:—There has been a remarkable advance during the past few years in the diagnosis and treatment of brain tumors. The work of Cushing, Fraser and Murphy, in this country, of Horsley, Ballance and others in Europe, indicates the possibilities which await surgical interference as a relief measure, especially in tumors of this type.

The first consideration in the study of a brain tumor is to group the symptoms, giving value to each individual symptom, and then to the group as a whole. The eye symptoms must be interpreted early. While they pertain to the intracranial disorders as a whole, yet the optic neuritis either singly or in combination must be considered as general pressure symptom as indicated in this case, and shows something is going on that should be investigated.

All of the symptoms pointed out in this case, I think, possibly could have been elicited earlier. While it is true latency in development is a feature of brain tumor and it is possible to find only on autopsy the existence of the tumor; yet the symptoms detailed by the author were of value as to the existence of an intracranial lesion and suggested tumor. An exploratory operation, or at least a de-

compression operation would have been justified as a relief measure from the symptoms present. Cushing has demonstrated the value of the operation, and I am inclined to believe that we do not fully appreciate this advancement in surgical relief.

During the past two years I have had nine cases of brain tumor under observation, five of which came to operation. Three autopsies were made. Only one case showed failure in localization and only in one was there a difference of opinion as regards the advantage of surgical relief. Recently I saw a case with Dr. L. C. Taylor, of Springfield, which was non-operable by reason of its localization, but even in such cases sometimes the decompression operation may give relief. Another case, pontine angle, localization, which I saw this winter, possibly could have been benefited if operated on when the lesion first made itself known over a year ago.

Dr. J. B. Murphy operated on a case for me. Dr. Patrick saw the case in consultation, confirmed the localization, etc. Relief was secured but the recurrence of the lesion (sarcoma) subsequently caused death. Dr. Fraser, of Philadelphia, operated on two cases for me, one of which was under the observation of Dr. Chas. K. Mills. This is the case where no apparent lesion was found. We need to study general symptoms, special symptoms and get a more comprehensive idea of localization and more belief in surgical exploration. The problems are both neurological and surgical and it is to surgery we look for relief. American brain surgery leads the world.

Dr. Arthur Dean Bevan, of Chicago:—I have been much impressed comparatively recently with the ability of the trained neurologist to locate, with a good deal of certainty, the position of a brain tumor. I was much impressed with that yesterday morning when three men—Dr. Wilder, an oculist; Dr. Koess, an internal medical man, and Dr. Rothstein, a neurologist—located with a good deal of certainty a tumor in the cerebello-pontine angle on the left side. The location was so definite that I was enabled, with an opening about an inch and a half in diameter over the left hemisphere of the cerebellum, from their location, to introduce, first, my little finger (gloved) as far as I could from the opening in the skull down to the tumor, to locate the tumor with my little finger, and with the index finger shell out the tumor, which proved to be a sarcoma. I was very much impressed with the great certainty with which this diagnosis was made. I think the case which has been reported here to-day and the one which I cited are strong arguments in favor of having trained men make these diagnoses.

Dr. Hugh T. Patrick, of Chicago:—I am very sorry indeed, owing to circumstances which were not within my control, that I was not present to hear Dr. Horrell's paper. However, I remember the case. Not having heard the paper, I do not see how I can discuss it, except in a general way, but since the chairman has asked me to say a few words I will do so.

While the early diagnosis of brain tumor is sometimes exceedingly difficult, it is also true that the earliest localizing signs are the most reliable. The late localizing signs of brain tumor are apt to be misleading, because as the tumor grows larger there are remote effects due to pressure. The dynamics of brain tumor, if one may use such an expression, is a very peculiar thing. A tumor that has been growing for some time, or growing rapidly, may produce symptoms simulating or exactly like signs due to compression or involvement of the brain at a considerable distance from the growth. So it is the earliest localizing signs caused by the tumor itself in its own locality which are valuable for the clinician. For instance, there is a whole table of differential signs between a frontal tumor and a cerebellar tumor. The possibility of confusion looks absurd upon the face of it. That a tumor of the frontal region should have a set of symptoms entirely similar, almost identical with those produced by a growth beneath the tentorium and at quite the opposite pole of the cranial cavity, seems impossible, but such is the case. These similar signs produced by tumors at remote localities are due to transmitted pressure and to the accumulation of fluid in the ventricles. The early irritative signs of tumor are much more valuable than the paralytic signs; that is, localized pain, irritation of cranial nerves, or irritation of the

cerebral cortex itself are the localizing signs of value. The paralytic signs, whether they be indicative of paralysis of the cranial nerve, the cutting out of function of the cerebral cortex or any sort of paralysis, are misleading. Notably so are the late cranial nerve signs, and of these the most misleading of all is paralysis of the sixth nerve, the abducens, supplying the external rectus of the eye, which is absolutely of no localizing value at all, because the nerve runs a long course, is slender and delicate, and may be paralyzed by a tumor at any place within the cranial cavity. In the case of a tumor which has progressed to the stage which this tumor had when I examined the patient, the stage of development of optic neuritis, optic atrophy, total blindness, to a point where the tumor is practically non-progressive, with very little headache, no vomiting, not much dizziness, and more or less paralysis, not particularly progressive, while the localization may be easy it is apt to be difficult, because the tumor having been there a long time and having reached a considerable size, may cause symptoms from many locations in the cranial cavity. The case cited by Dr. Bevan is interesting, but it is not one in which neurologists would particularly pride themselves on their skill in localization, because that is one of the few localities in the brain where the localization is exceedingly easy and can hardly be missed if one knows anything about cranial topography and can get the history. In these cases of tumor in the cerebello-pontine angle, the progress of events is, first, one of irritation of the acousticus or facial, or both, then one of pressure on the pons or cerebellum, and then instead of an irritation of the seventh or eighth facial paralysis, with increasing nerve deafness; then the added cerebellar signs; so that the diagnostic points of these tumors have come to be a sort of A, B, C in cerebral localization. It is the tumors which produce none of these progressive cranial nerve signs, and tumors in the so-called silent areas of the brain, which cause the greatest possible difficulty. I may say that in the majority of cases of brain tumors, taking them as they come, say a hundred in succession, perfect localization is absolutely impossible; although the more one knows about them, and the more carefully one studies these tumors, the fewer mistakes he will make, and the more confidence he will have in localization.

Dr. Horrell (closing the discussion):—I have nothing to add except this, that probably this picture may impress us all with what to me appears to be of very great importance, namely, early diagnosis and early reference of the case to a specialist.

THE ACTION OF THE COAL-TAR ANODYNES.*

BERNARD FANTUS, M.D.
CHICAGO.

Twenty-five years ago the substances under discussion this evening were quite unknown. To-day they rank among the drugs of first importance, if the frequency with which they are used serve as criterion. Most prominent among them are acetanilid, acetphenetidin and antipyrin. While at first their antipyretic action, unequaled by any previously known agency, rivited the attention of mankind, their dangers when used for this purpose soon became apparent, so that at present they are mainly used because of their pain-relieving power. Therefore the name "coal-tar anodynes" seems to me much more appropriate than the older titles, "coal-tar antipyretics." As the opinion of the medical profession is quite well crystallized in regard to the use of these substances as antipyretics, which is now limited to minor cases of fever and in the

* Read before a Medico-Pharmaceutic Joint Meeting at the West Side Branch of the Chicago Medical Society, Dec. 17, 1908.

severer forms as adjuvant merely to the use of hydrotherapy, I desire to devote this paper exclusively to a study of their anodyne action.

In pain-relieving power the coal-tar anodynes are not as omnipotent as is morphin. They undoubtedly relieve pain in an entirely different manner. Morphin produces its first effects in the psychic sphere, and the best explanation of its anodyne action is that it lessens the appreciation of sensory stimuli. The coal-tar anodynes, on the other hand, affect the nervous system in an entirely different order. They act on subcortical centers much earlier than they do upon the cortex. Psychic phenomena do not occur until after marked disturbance of the functions of the basal ganglia and of the medulla has been produced, showing itself in their antipyretic action and in their marked tendency to produce collapse. I am tempted to formulate the theory that their anodyne action is likewise due to influence upon the structures at the base of the brain, for they evidently do not affect the cortical end-station for sensory stimuli as morphin does, nor do they act upon the lower sensory neuron, their action upon the spinal cord and its adnexa being quite subordinate. Therefore, they most probably act upon some point in the intermediate sensory neuron, perhaps upon the optic thalamus, the great sensory ganglion at the base of the brain.

The pains for which the relief of these substances have been found especially useful are those that originate from nutritional disturbances within the nerve structures themselves, neuralgic pains in the widest sense of the word. They relieve many different types of headache, trifacial neuralgia, intercostal neuralgia, sciatica, certain types of gastralgia and the lightning pains of locomotor ataxia. The aching of head, back or limbs accompanying febrile disturbances is likewise relieved by these agents, often in doses that are insufficient to affect the temperature. While useful against the pains of mild neuritis, they fail in the pains of severe neuritis, as they fail in inflammatory pains in general, as well as in pains due to gross anatomic disturbances.

It must be clearly understood, however, that the coal-tar anodynes are mere symptom medicines, that is, that they temporarily relieve the symptom (pain) without improving the underlying morbid condition. Indeed, many a time the underlying condition is made worse, just because the pain is relieved and nothing is done to relieve the cause of it. Take, for instance, a patient who suffers from headache due to overfatigue—a person who works or plays too hard and rests too little. These remedies relieve the pain and permit him to keep on in his self-abuse until finally his whole nervous system is wrecked, until he suffers from an advanced and confirmed case of nervous exhaustion. Had his headaches not been relieved they would have compelled him to rest, and the ultimate breakdown would have been averted. Druggists, remember: pain is a danger signal. Pulling down a danger signal on a railroad is a crime. Is it less of a crime to pull down a danger signal that an intelligent physician might use to avert a human wreck?

Furthermore, these remedies are not free from danger. There is danger from overdose as well as from overuse. Overdose is not merely a

question of quantity, but also of tolerance of the system. While the doses given in the text-books are safe enough for normal individuals, they may be fatal for patients suffering from certain diseases. A large number of deaths is now on record that resulted from doses of the coal-tar anodynes that are usually considered safe. The most prominent symptoms were cyanosis and collapse. It is true, in most of these cases, the individuals that showed the intolerance were abnormal, owing to heart disease, kidney disease or other grave organic disturbances; but the danger is just as great, for it is the sick and not the well that take these drugs. As the druggist does not know whether the hearts and the kidneys of his patients are sound or not, he should be prohibited by law from dispensing these potentially homicidal drugs without a physician's prescription.

As is well known, continued use of these medicines undermines the system. At present the dangers from prolonged use of acetanilid are best known; it is, however, certain that all the other agents of this group, differing as they do from each other quantitatively rather than qualitatively, are capable of producing similar results. The symptom-complex of chronic acetanilid poisoning, which is so well given in connection with the case reported by Drs. Herriek and Irons (*Journal A. M. A.*, Feb. 3, 1906, p. 351), should be more familiar to physicians, as they would by it be able to fathom many a puzzling case. When a patient presents cyanosis and dyspnea without adequate explanation for these symptoms by the condition of heart, lungs or other organs, the suspicion of acetanilid poisoning is justified. If the blood examination reveals a secondary anemia with degenerate and nucleated red blood corpuscles, or a polycythemia, and if the urine has a dark color or darkens on standing, the suspicion is strengthened. The proof can be obtained by an examination of the urine for paramidophenol, which is easily recognized by the so-called indophenol test, performed as follows: The urine is boiled for a few minutes with one-quarter of its volume of concentrated hydrochloric acid. On cooling, a few c.c. of 3 per cent. carbolic acid solution are added, and then hydrochlorite of calcium or dilute chromic acid solution. Amidophenol gives a red color, and on adding an excess of ammonia the color changes to blue.

The ease with which anyone can on his own solicitation obtain these powerful poisons is appalling. Patent medicine advertisements actually force these agents upon the public. Druggists promote their consumption by counter-prescribing and the pushing of "just-as-good" preparations of their own; and the careless doctors who use these agents in lieu of and without treatment of the cause of the complaint are aiding and abetting this great evil of our times. It must not be understood that I condemn the use of these agents altogether. Properly applied and controlled by supervision of a skilled physician they are a blessing to humanity. It is only when they escape this control that they become a blight and a curse.

How are physicians to choose among the bewildering number of contestants for medical favor belonging to this group? Chemistry and

experimental pharmacology, which are responsible for their production, also furnish the key to their selection. The substances in use at the present time may be readily subdivided into two sub-groups: the acetanilid sub-group and the antipyrin sub-group.

The bodies of the acetanilid sub-group owe their activity to the formation of paramidophenol in the tissues. The chief difference between them is the rapidity with which the formation of this substance occurs. Those that yield paramidophenol rapidly have the promptest and most powerful action; they are, however, also more fleeting in their effects and more dangerous by having greater tendency to produce blood destruction and collapse. Such agents are acetanilid and exalgin. As 0.30 Gm. (grs. 5) of acetanilid have produced death, the dose of 0.25 Gm. (grs. 4), given in the U. S. P. as the average dose, should also be the maximum initial dose. Exalgin, which is methyl-acetanilid, is even more dangerous than acetanilid, and 0.20 Gm. (grs. 3) should be considered its maximum dose. It would probably be best, however, to discontinue entirely the use of acetanilid and of exalgin, as we have succedanea for these that are much safer and nearly as efficient.

The phenetidin compounds, which yield paramidophenol much more slowly, are certainly much safer. Among these acetphenetidin, heretofore known as phenacetin, probably yields maximum therapeutic effect with minimum toxicity. Its comparative insolubility is the only objection to its use. When, however, the solubility is greater, as in lactophenin, the toxicity is at once increased. Acetphenetidin is a remarkably safe substance. No fatal case of poisoning in human beings is on record; however, 1.50 Gm. (22½ grains) of it are reported to have produced collapse with cyanosis in a woman. The pharmacopeial average dose of acetphenetidin given at 0.5 Gm. (grs. 7½) is unnecessarily large as an initial dose. I have obtained satisfactory anodyne results in cases suitable for these agents with doses of 0.10-0.20 Gm. (grs. 1½ to 3), which may be repeated every hour for two or three doses, if necessary. Owing to its slight degree of solubility, this substance is best prescribed in powder form, or the powder enclosed in gelatin capsules or cachets. Formation of pill mass or compression into tablets is liable to result in a worthless insoluble lump.

The phenetidin compounds recently thrown upon the market by chemical enterprise are so numerous that it is practically impossible at the present time to decide authoritatively their conflicting claims, for each is launched as the safest and the best that was ever discovered. It is, however, quite a safe proposition that, if acetphenetidin is unsuitable, the substitution of a closely allied acid radicle for the acetyl will make very little difference. Often the difference is not at all in favor of the new agent. For instance, 1.0 Gm. (grs. 15) of citrophen, one of these highly lauded substitutes for acetphenetidin, has produced cyanosis and collapse.

The antipyrin sub-group is derived from phenylhydrazin, as the acetanilid sub-group is derived from anilin. Phenylhydrazin is another blood poison like anilin. The main advantage of antipyrin lies in its

solubility, which, however, makes it quite an irritant when applied in full concentration. Because of its irritant properties, antipyrin should never be prescribed in capsule form. It lends itself very nicely to prescribing in solution. As it is very generally incompatible, it is better prescribed alone, unless the proposed combination has previously been carefully investigated. The U. S. P. average dose of 0.25 Gm. (grs. 4) is certainly a much safer dose than the larger doses advocated by many other books.

Numerous combinations of antipyrin with other powerful substances are upon the market: e. g., hypnal, which is chloral and antipyrin; salipyrin, which is salicylic acid and antipyrin; acetopyrin, which is aspirin plus antipyrin. It seems better to use these active drugs in their simple form, and to administer them in the desired proportion, instead of using a combination, often without knowing the relative amount of each of the ingredients. For instance, all the salicylic acid derivatives of the coal-tar anodynes suffer from the fundamental fault of containing far too little salicylate to be of any use in acute articular rheumatism.

Perhaps the only antipyrin derivative of real importance is pyramidon, which is an amido-antipyrin. It is claimed to be three times as powerful as antipyrin, to be devoid of gastric irritant action, though it is slower, requiring sometimes two hours for its action to declare itself. It is, on the other hand, more durable in its effects. It may be that the relation of pyramidon to antipyrin is similar to that of acetphenetidin to acetanilid. If so, it may be a remedy of real value. Its dose is stated to be from 0.30 to 0.50 Gm. (5 to 8 grains). I have found half as large doses efficient. It may also be used hypodermically in doses of 0.6 to 0.12 Gm. (1 to 2 grains): e. g., in sciatica, injected into the sciatic nerve once or twice daily.

In conclusion, it may be profitable to study the pharmacology of some of the popular combinations. First and foremost in popularity is the combination with caffeine, usually in the proportion of one part of caffeine to three parts of the coal-tar derivative. The caffeine is supposed to antagonize the collapse action. That it is not very successful in this respect is evident from the fact that just such combinations as are found in bromo-seltzer, antikamnia, etc., have repeatedly produced death. Perhaps the main reason for the popularity of this combination lies in the fact that caffeine has a specific action in temporarily overcoming fatigue and the symptoms produced by it, such as the aches and pains of nerve-tire. In just such pains the coal-tar anodynes are also of value. A combination of the two undoubtedly acts with greater force in cases of this kind than either remedy alone. We must not forget, however, that caffeine produces wakefulness. Therefore this combination must not be used in the thoughtless manner in which it has so often been employed in the past. It is especially indicated in fatigue disturbances; it is especially contraindicated in insomnia and in conditions of excessive nervous irritability. Combination with a bromid is likely to be of advantage in the last mentioned condition.

Alkalis are often added to acetanilid in the belief that the remedy is thereby rendered more soluble, thus insuring prompter action. Puckner

(*Journal A. M. A.*, Oct. 13, 1906) has shown that such addition does not increase the solubility. It is conceivable that the combination with sodium bicarbonate might be of value in gastralgia; a good deal more bicarbonate would, however, have to be added than is contained in the compound acetanilid powder of the U. S. P. or in similar proprietary combinations. Ammonium carbonate has been added for the double purpose of solvent and heart stimulant. As solvent it is useless, and its prompt but fleeting action must have disappeared long before the depressing action of the acetanilid develops; hence, when wanted, it would not be there.

Combinations with salicylates, which are closely allied to these agents both chemically and pharmacologically, are remarkably efficacious in pains of rheumatic nature. More salicylate would, however, have to be added than is contained in most of the synthetic preparations on the market. It may be noted here that sodium salicylate forms a pasty mass when rubbed with antipyrin, hence could not be dispensed in powder form or in capsules. Acetphenetidin, on the other hand, may be mixed with salicylate, preferably acetylsalicylic acid (aspirin) and administered in form of powders, capsules or cachets.

The difference in point of attack of morphin and of these agents suggests that a combination of the two might act very efficiently, which is asserted to be a fact by Lambert (*Journal A. M. A.*, Dec. 21, 1907), who states that the combination of acetphenetidin, 0.30 Gm. (grs. 5), and morphin, 0.005 Gm. (grs. 1/12), is four times more efficient an analgesic than either remedy alone.

STUDIES IN CONTEMPORARY WORKMEN'S COMPENSATION.*

SECOND PAPER.

W. H. ALLPORT, M.D.

CHICAGO.

IV.

THE FRENCH LAWS.¹

The old French Code Civile based recovery of damages for industrial injuries upon the ancient theory of negligence, and the burden of proof lay upon the injured workman.

In 1880 Martin Nadaud, in the Chamber of Deputies, sought to have this procedure reversed, but the effort was unsuccessful. In 1883, Felix Faure, afterward president, introduced in the Senate a project of obligatory insurance against *risques professionnels*. This project was based, without doubt, on the measures then pending in the Reichstag, for not

* The synonymous terms "workman" and "employé" are used in the sense defined by the English Workmen's Compensation Act of 1906, q. v. The term "compensation" is used in the sense of a *solatium* for injuries received, and not as a wage for service performed.

1. E. Levassour: *Question Ouvrieres et Industrielles en France sous La Troisieme Republique*, pp. 463-474. Green Bag, No. 18, 1906, p. 225 et seq., B. H. Connor.

only was the general direction of the law the same, but in many clauses the wording was nearly identical. Faure's project, after many vicissitudes, both in Senate and Chamber of Deputies, failed of enactment. In 1885, M. Rouvier, then minister of commerce, introduced another abortive project. Other efforts, all unsuccessful, were made in both chambers, in 1888, 1890, 1895 and 1897.

Finally, eighteen years after Nadaud's first effort, and thirteen years after the first German law went into effect, the French legislature passed the law of April 9, 1898. Debate was long continued as to whether the law should be based on the reversal of the burden of proof originally suggested by Nadaud, on compulsory insurance, as suggested by Faure and exemplified in the German system, or simply on the responsibility of the employer for *risques professionnels*. The last method was finally selected, both because it was more sure of reaching the greatest number of cases, and because it was less likely to produce disarrangement of the industrial interests of the nation, than a law burdening employers with an obligatory insurance tax.

Under the law adopted, the industry creating the risk is chargeable with the injury—*accident du travail*—whether due to employer, vice-principal, employé or coemployé; excepting only after such accidents as can be plainly demonstrated to be due to inexcusable negligence of the workman (principle of *l'indemnité forfaitaire*), and not to any inherent risk of industry. Under the last-named condition, the judge can reduce or forfeit the indemnity. All actions for recovery in this class of cases are barred, except under this law.

The law was modified in 1902, 1905, and finally, in 1906—in effect Jan. 1, 1907. It comprises 4 titles and 34 articles, and applies to all machine-driven industry, except such as is moved by man or animals, and provided the work of the injured employee is interrupted for more than four days.

Two thousand four hundred francs is the maximum full earning capacity which can be used as the basis of compensation; any excess of earnings beyond £2,400 is computed at one-fourth of the excess.² For total and permanent disability, the workman receives a pension equal to two-thirds of his salary, computed as above. For partial or temporary disability, he receives one-half of the reduction in his wages caused by the injury. Cost of surgical attendance is paid by the employer.

In case of death, £100 is allowed for funeral expenses; the wife secures a pension of 20 per cent. of the estimated wages of the deceased and the orphans receive 40 per cent. for the loss of one parent and 60 per cent. for the loss of two. The dependent relatives of a workman without wife or child may receive 30 per cent.

All pensions are payable quarterly and cannot be assigned or seized.

Revision of a pension is allowed after three years, on proof of change in the degree of the disability. The payment of a pension is guaranteed, either through turning over the capital necessary to produce it, or through insurance—approved by the state—in mutual insurance socie-

2. Cf. the German law.

ties or unions of employers, the former within the large establishments and participated in by both employers and workmen,³ the latter similar to the trade groups of the German empire. These insurance contracts, however, are very strictly supervised by the government, and any waiver of rights is absolutely barred.

Certain objections have been made to the laws as last modified: 1. The law does not specify exactly what are—and what are not—industrial accidents. This failure of exactness has given rise to many disputes over hernia, appendicitis, varicocele, piles, varicose veins, etc.⁴ 2. It makes no provision for accidents producing injuries not resulting in loss of earning capacity, such as disfigurements, deformities, painful conditions, etc. 3. It tends to discriminate against the employment of married men through obliging employers to pension their survivors.

Statistics are not yet available on which to base an opinion of the success or failure of the law of 1906, but the operation of the earlier laws has been eminently satisfactory, both to masters and workmen, except in the few details which have been recently altered.

"There is not, perhaps, an example," says M. Bourguin, "in the history of legislation, of a movement so rapid and so unanimous as that adopting the principle of responsibility of industry for professional risks. Since the German law of 1884, and above all since 1900,⁵ all of the industrial states of the civilized world" (!) "have incorporated into their codes some recognition of this obligation of the product to the producer."

V.

THE GERMAN INDUSTRIAL ACCIDENT INSURANCE LAW.⁶

Had we undertaken to follow closely a logical sequence in tracing the development of the various phases of workmen's compensation for industrial accidents, we should have started with a review of the German laws. But to the American mind—arrogant and direct, yet timorous and untrained; intensely conservative and provincial, yet ignorantly boastful of progress; wedded, in short, to a distorted and selfish individualism—such a brief study as we have just made, of the comparatively simple and conservative compromises of the English and French legislation, would seem to furnish a less startling approach to the technical and far-reaching statutes by which German Europe has escaped from the obsolete formulas of common law.

It would carry us too far from our present subject to discuss at length the virile influence which the social philosophy taught by Hegel, and applied by Marx and Lassalles, has had upon German politics and legislation from before the time when our own Carl Schurz was imprisoned and driven from Prussia because of his participation in the movement of 1848-49, down to the decade of 1880, when the old Kaiser, guided

3. Such as was recently organized by the International Harvester Co. of the U. S., and not unlike the Beneficial Associations of certain of our railroads.

4. Coley: *Internat. Jour. of Surg.*, January, 1908.

5. See table at end of this article.

6. *Unfallversicherungsgesetz*, mit Anmerkungen von Dr. E. von Woedtke, 7te Auflage, Berlin, 1901.

A TABULATED REVIEW OF WORKMEN'S COMPENSATION LAWS IN EUROPE.*

Twenty-Three States	First Law.	Occupations Covered.	Distribution of Load.	Insurance.	Tribunals.
Germany	1884	Manual labor only.	Borne by both parties.	Compulsory, mutual.	Arbitration courts.
Austria	1887	Manual labor only.	Borne by both parties.	Compulsory, mutual.	Arbitration courts.
Norway	1894	Manual labor only.	Employer alone.	Compulsory in State institutions.	Insurance office.
Finland	1895	Manual labor only.	Employer alone.	Compulsory in government or private institutions.	1. Insurance office.
England	1897	All employments and salaried employees.	Employer alone, but administration at expense of State.	Voluntary or by approved mutual schemes.	1. Lower courts.
					2. Arbitration committees.
					3. Arbitration from County courts.
Denmark	1898	Manual labor only.	Employer alone.	Voluntary or in approved mutual insurance.	1. Local magistrates.
France	1898	All employments and salaried employees.	Employer alone.	Voluntary.	2. Insurance council.
Italy	1898	Manual labor only.	Employer alone.	Compulsory in some institutions.	1. Minister of Interior.
Switzerland ...	1899	Regulation by Cantonal enactments only.	Employer alone.		2. Local justice of peace.
					3. Higher legal tribunals.
Spain	1900	Manual labor only.	Employer alone.	Optional.	1. Local arbitration board.
Six English Col. to 1906	1900	All employments and salaried employees.	Same as Great Britain.	Voluntary or by approved mutual.	2. Local magistrates.
Holland	1901	Manual labor only.	Employer alone.	Optional.	1. Permanent labor—arbitration tribunal.
					2. Local courts.
Sweden	1901	Manual labor only.	Employer alone after the 4th week.	Optional in State or private institutions.	1. Royal Ins. Bureau.
Greece	1901	Mines, quarries and metallurgical only.	Employer, but also in small part by workman.	No provision.	2. Local Arbitration bd.
Luxemburg ...	1902	Manual labor only.	Borne by both parties.	Compulsory in State institutions.	3. Central Arbitration bd.
					1. Arbitration.
					2. Ordinary courts.
					3. Insurance council.
					4. Ordinary courts.
					5. Ins. institution.
					6. Justice of peace or arbitration.
					7. Higher courts.
					8. Local justice of peace, with right of appeal.
					9. Ordinary courts, but no costs; fees of attorney fixed by court.
Belgium	1903	All employments.	Employer alone.	Compulsory, either by employer, or in Ins. Co.	Arbitration courts.
Russia	1903	Manual labor only.	Employer alone.	Optional.	
Hungary	1907	All employments and salaried employees.	Borne by both parties.	Compulsory in State institutions.	

Employer liable for injury to employee in all States; no exemption except for gross carelessness or illegal act of employees. Amount of compensation based on wage in all States except Sweden, and fixed by law in all States; includes in all States medical, surgical and funeral expenses. The benefits of these laws are usually extended to corresponding classes of State employees. Almost all of the laws are framed with a view towards escaping the expense of the intervention of lawyers or legal tribunals. The proceedings usually resemble an arbitration before a commission, or—as in our country—the informal courts held by Masters in Chancery. In case of insolvency, claims for allowances—pensions, etc.—have a prior lien.

* See Bulletin Bureau of Labor, U. S., Washington, January, 1908.

by Bismarck, brought before the Reichstag the most radical and complicated social-industry policy ever espoused by a European government.

But it must be noted, in order to understand the sources of the ultimate supreme excellence of the German system, that in the Imperial Code has been developed, *under the influence and in consequence of the university training to which most of its makers have been subjected*, a more consistent progression toward a solution of the modern industrial problem than is to be found in any other body of law.⁷

Admitting also the postulate that the modern study of social philosophy has made its deepest impression upon the German university student, it is no difficult matter to see these convictions, within succeeding decades, transmuted and matured into practical legislative results.

The story of the rise of the social-democratic party is inseparable from that of the modern movement toward a general reconstruction of German and European industrial relations. It cannot be forgotten that without this third party—always in the minority, always segregated from Conservatives, Liberals and Clericals, yet always with increasing numbers and influence to force its timely but unwelcome views upon the attention of the Reichstag—there would have been very little of that constructive industrial legislation, either in Germany or in other European countries, by which the lives of the laboring classes have come gradually to be worked out under an entirely different system of law from that which governed their fathers.

It has been the misfortune of the social-democratic movement that, outside of Germany—and especially in America, where ideas of social philosophy begin and end with the individual, and are not only primitive but reactionary—this party has been constantly associated with the party of nihilism and anarchy. Exactly the contrary is true. Marx, the founder of the International Labor party, and Lassalles, the first great labor leader in the Prussian assembly, were trained at Berlin—Marx by the side of Bismarck—and all three absorbed the peaceful and really conservative teachings of Hegel. Nothing was more abhorrent to Lassalles—or to Liebknecht, his successor—than the violent and sulky negations of Bakounine and his nihilist followers, and when the latter endeavored to gain control of the first International Labor Congress they were defeated by an overwhelming majority. Under the arbitrary powers of Bismarck and the Crown, aided by the large conservative and liberal majorities in the Reichstag, the social-democrats labored for twelve years under unjust disabilities, tending to class them to the outside world among those political outlaws who were in favor of carrying their purpose by violent or obstructive methods. But these men, whose well-matured minds were trained in just as orderly an adjustment of philosophical processes as were the minds of those who sat on the more favored

7. The German University offers to a remarkably large percentage of the most brilliant of its students an opportunity for easy entrance into a permanent and useful official life. The man of brains and persistent energy, who in our country leaves the University to find a ready financial success in business and the professions, and who turns only temporarily and semi-occasionally to politics, finds in European countries a more congenial and ultimately more satisfactory direction for his trained talents in a life devoted to constructing and operating the machinery of government.

benches, finally impressed their views—even while still under the ban of the law—upon their opponents, and forced from them legislation, the seed of which was sown by Friedrich Hegel more than fifty years before in the University of Berlin.⁸

We can hardly consider the German method of dealing with industrial accidents without stopping to recognize the source of this racial movement—state socialism, if you will—toward publicly controlled provision for old age, sickness, education, ownership of railroads and telegraph, and the municipal acquisition of land, of which the Accident Insurance Law is only a fragment. But the scope of these studies can hardly allow a consideration of more than one phase of this general progression toward industrial betterment.

VI.

Formal recognition of the necessity for legislation in the interest of injured workmen began with the short clause in the Prussian Railroad Law of Nov. 3, 1838, to which reference has been made in the previous paper. Certain paragraphs of the old Prussian Commercial Code also show a conviction already crystallizing, that the unfortunate plight of those employees who were the victims of trade accidents, could hardly be relieved through the application of any existing doctrine of civil or common-law responsibility which might reach only the negligence of an employer. But these fragmentary efforts at succor were hardly more

8. Some of the combinations of German university and political life made strange bedfellows.

Carl Marx, a Jew, and Bismarck, were both born in 1815, and studied together in Berlin, where Hegel had taught from 1818 to 1831. The former, however, instigated and the latter aided in repressing the revolution of 1848. Lassalles, also a Jew and also a graduate of Berlin, and a follower of Hegel and Marx, founded the Social-Democrats in 1861. Bismarck, for more than a generation, found a combination with that party, from time to time, less humiliating and costing less sacrifice of imperial prestige, than would have been an out-and-out defeat at the hands of the Liberals. Indeed, he was often accused—with much show of reason, in view of his early associations and later industrial policy, and of his avowed friendship for Lassalles—of being himself a concealed Social-democrat. Yet in spite of the fact that Bismarck owed more to Lassalles than to any other one man among his early contemporaries, he did little to mitigate and much to increase the political disabilities of his secret friends, if such they were, for it was not until 1890, that the law of 1878—of which he was the sponsor—against the Social-Democrats was relaxed. Bismarck was an opportunist—so far as political measures were concerned—and his candid opinion of economic doctrine may be summed up in his cynical epigram on the Sickness Insurance Bill: "Call it Socialism, or what you will, it's all one to me—mir ist's einerlei—so that it passes."

Lassalles died in a duel at Geneva in 1864, but he lived long enough to thoroughly organize the Social-Democrats, and to instill into the party the conviction that its usefulness depended on a peaceful unity of purpose, which, whilst maintaining political solidarity, should hold itself ready for temporary consolidation with any other party willing to help along the cause of the workman. He taught them—as he taught Bismarck in European politics—the great principle that more than temporary combinations were apt to mean absorption and annihilation.

The old kaiser was more frank and genuine than Bismarck in his confession of faith, as has been seen in the quoted extracts from his speeches, and, although of necessity monarchical, he was a Democrat in his tastes and a Socialist in his leanings. To make his situation more anomalous and embarrassing for Bismarck, and later on for his grandson, the future Kaiser, he fell under the influence of the court preacher, Parson Stoecker, who presently evolved—with imperial assistance—a party which they called Christian-Socialists, absolutely monarchical as to ideas of government, but distinctly Socialist as to industrial policy. This policy, somewhat modified, was adopted by the present Kaiser in the first years of his reign, and it was his advocacy of an International Industrial Conference which led, in part, to the rupture with Bismarck in 1890.

Thus, during the thirty years following his exile from Prussia, did Marx so succeed in saturating the social and political fabric of Germany with his economic views that, by 1880, party policies on this question—from Conservatives to Social-Democrats—differed merely as to the scope of the reforms and the methods by which they should be brought about.

than hints toward an ultimate direction which the law might take. During the ensuing thirty-three years the attention of German statesmen was so occupied with the rapidly changing aspects of European politics, that little apparent progress was made toward any readjustment of the industrial laws to the important changes which the introduction of steam-driven machinery was making in the status of the workman. We say that progress was apparently slight, but under the surface—and probably taking advantage of the diplomatic unrest which was diverting attention from internal affairs—was developing that social-democratic movement which was presently to result in legislation which twenty years before would have been considered revolutionary.

With the formation of the Germanic empire in 1870-1871, the situation changed; and Germany relieved of the duty of watching the eastern and western frontiers, turned energetically to the task of restoring and welding the laws and customs of the new federation into consistent and organic unity.

During the construction of the Imperial Code, by which the empire has been governed since 1871, and which is made up of laws passed by the Reichstag, after approval and sanction by the federated states, there was enacted, Jan. 7, 1871, an Employer's Liability Law, which definitely formulated the liability of railroads, mines, quarries and factories toward injured employees. On account of the necessary caution entailed by the legislative novelty of this enactment,⁹ the framers of that law deliberately chose not to go, at that time, beyond certain narrow and experimental limits, but the intimation was clearly conveyed that the venture, if effective, was but a foretaste of future action. The two essential features of this law were curiously at variance, and led to situations quite as complicated as any which were observed to follow in consequence of the early English laws, or such as exist at the present time in the United States.

1. A railroad was liable for the consequences of an accident, unless it could show the cause to lie in the intervention of a higher power or *negligence of the employé—the burden of proving exemption was on the employer.*

2. A factory, mine or quarry was liable *if the employé could prove negligence—the burden of proof was on the employé.*

For workers in Group 2 the benefits were soon found to be illusory. In many instances the prescribed procedure was found to be a positive hindrance, especially to the survivors of fatally injured employés, for the heavy burden of proof had to be borne by those least able to bear it. Nor was the provision made to cover accidents caused by a fellow-servant, and the responsibility was limited to that arising under the civil law. Insolvency also furnished a ready method of escaping a heavy adverse judgment. Finally, it became a universal practice for employers to protect themselves through insurance companies, who not only paid no large damages without suit, but ground the workmen down to unjust settlements, and seriously impaired the friendly relations which should have been maintained between employer and workman. Thus, the workman,

⁹ See President Roosevelt's message, already quoted.

dissatisfied over a situation which, at a time when he or his family needed help most, gave them the worst end of every bargain, was preparing to lend a willing ear to the so-called socialist teachings of the social-democracy.

It was at this time that the official mind became so concerned over the progress of socialism that the law of Oct. 21, 1878, against the social-democrats was enacted. The serious character of this movement was recognized in high quarters, as well as the necessity for some step, not merely repressive and destructive, which would definitely satisfy the great body of still loyal workmen, that their hope of relief was to be realized by methods more peaceful and constructive than any which it was feared might germinate in the disabled, but still fertile, brains of the social-democrats.

To accomplish this purpose, any further extension of the doctrines of civil-law liability of employers was finally conceded to be out of the question, and it became necessary to rest relief measures upon that higher and more imperative doctrine of public policy, which imposes upon the state the duty of providing, somehow, for those injured while contributing toward the common wealth of the nation.

It is no easy matter to pick the historical thread of this particular legislation from that great fabric of laws woven during the period of 1880-1890, the makers of which sought no less an object than the cure of poverty and dishonorable alms-taking, through enforced prevention of the traditional improvidence of the workman. The task is made easier, however, because legislation necessary to attain this end touches such a diversity of interests that no general law would apply to all forms of disability. Thus, the duty of maintaining the sick, the infirm and the aged could neither be assumed by the state or the employer, nor borne by the family, without loss of self respect to the individual. Hence arose the system of compulsory sickness and old age insurance—a tax upon the wage of the individual by which the latter, during his period of activity, protects himself by contributing to a fund which maintains him during his period of disability. We need not here discuss the tendency or ultimate effects of this class of legislation, or defend it against the charge of paternalism, except to maintain that, during the twenty-five years since the law of June 15, 1883, went into effect, there has been no complaint either that it failed of its purpose, or that it has caused any honest workman to lean too heavily upon the paternal arm of the government.

The enactment of laws applying the principle of compulsory insurance to disability through sickness, etc., was comparatively easy, since no large financial interests were disturbed, no pre-existing system of law was upset, and the fund, being made up of millions of only small contributions, produced no effect upon individuals other than a pleasing sensation of independence and security.

The final passage of the Sickness Insurance Law, June 15, 1883, after several years' discussion, prepared the way for, and in fact was coincident with, a consideration of the much-needed changes in the system of dealing with those disabled through industrial accidents.

Here the conditions were widely different, since many important interests were involved—insurance, political, financial, legal, corporate, personal—all of which were able to bring great pressure to bear upon the Reichstag. These interests had to be either reconciled or ignored. It was at this juncture that the Kaiser, in the series of speeches from which extracts have already been made, laid down clearly the reason for such radical legislation, and indicated in no uncertain language the progressive lines along which it should proceed. These lines were as follows:

1. State control of the insurance system, to the exclusion of private or mutual insurance concerns, which had hitherto come between employers and workmen to the detriment of both.

2. A distribution of insurance charges, so that neither employer nor employee should pay more than his fair average allotment.

3. The formation of groups or associations of employers, within trades whose accident risks reached about the same average, and whose assessments could be equitably estimated from the same statistics.

4. The recognition of the principle that the injured workman—irrespective of any source of negligence except the grossest—is entitled to demand compensation, at the expense of the industry, for injuries sustained during the process of production.

5. The removal of this class of cases from the jurisdiction of the ordinary courts, and the establishment of special tribunals and procedures for their adjustment.

As might have been expected, several unsuccessful attempts were made to elaborate the details of a law which should successfully operate along the lines indicated, without either producing friction between the states, ruin to certain manufacturing interests, or injustice to many individual workmen.

It first became necessary to collect statistics of accidents arising in the various industries, and occurring during a period which should be long enough to give practical value to the data. This period was fixed at the four months August-November, 1881, and it is of the gravest interest to the American student of these problems to note that employers of labor throughout Germany cooperated enthusiastically with the Department of the Interior in collecting the information. By the end of 1881 classified statistics from industries employing over 2,000,000 workmen were available. Thus was secured a practical basis upon which to elaborate the details of the subsequent legislation. The hardships which the delay caused to those who were most interested in a termination of the situation were very materially mitigated by provision in the law of June 15, 1883—which went into effect Dec. 1, 1884—for the care of *injured* workmen up to a limit of thirteen weeks' disability. This provision stipulated an obligatory assessment against employers, of an amount equal to one-third of the entire Sickness Insurance Fund, and was designed to meet the immediate expenses of disability through traumatism. All questions of liability, as well as of damages for death, and of disability and expense beyond thirteen weeks, were left to be settled by the ordinary courts.

Between the years 1881-84 three various attempts were made to construct a law which should not only bring adequate relief to those unprovided for by the Sickness Insurance Fund, but which should lift the entire question of damages out of the civil courts into the higher plane of public policy suggested by the Emperor.

It was finally decided, after a study of the collected trade accident statistics—especially of those throwing light on the coefficient of risk for the various callings—to try the experiment of a limited law which would apply only to workers in manufacturing industries, and to follow that law, if its operation was successful, with others which would finally reach every class of workmen. To one man more than all others is due, not only the framework of the original law, and its enactment by the Reichstag, but also the immediate and permanent success which marked its subsequent operation—T. Bödiker, at that time Imperial Councillor in the Department of the Interior, and later the head of the Imperial Insurance Bureau. The law was passed by an overwhelming majority. July 6, 1884. With the enthusiastic cooperation of the manufacturing interests, Bödiker then undertook the organization of the complicated details necessary to carry its provisions into effect, and on Oct. 1, 1885, by an imperial order, the long-looked-for Industrial Accident Insurance became an accomplished fact.

The passage of this law was followed rapidly by others, widening the scope of the original law to the employés of Land Transportation Companies and certain branches of commerce—Oct. 1, 1885-June 24, 1886; Farm and Forest, May 5, 1886; Building Trades, July 11, 1887; Marine-Service, July 13, 1887; civil employés of the state, March 15, 1889.

During the years following these enactments, the Imperial Insurance Bureau, gaining confidence with the knowledge and experience acquired through the continued operation of the system, was enabled to prepare a general code—revising, consolidating and improving these various laws. This code was adopted by the Reichstag and went into effect in the law of June 30, 1900, and is now operative throughout the German empire.

VII.

The workmen's insurance system of the German empire is organized as a bureau of the Department of the Interior. Each state of the federation has also its own bureau of insurance controlling industries within the state. The method of operation of the state bureaus is identical with that of the Imperial Bureau.

The Imperial Industrial Insurance Bureau is composed of a president, with two directors, and a number of other officials appointed for life by the Emperor, four directors selected periodically from the Bundesrath, and two directors selected by the Bundesrath to represent the workmen. This bureau has charge of the details of the system—collects statistics, makes rules and reports, and serves as a court of final appeal.

Operating under authority of the bureau are the "Courts for Industrial Insurance Claims," composed of one government official, and two representatives each, from the employers and the workmen. These

courts have jurisdiction over all cases not settled by the trade committees, but in certain cases their decision is not final, and appeal may be taken to the bureau.

The investigation of accidents is made by the police and reported to the bureau, and it is also the duty of employers to report all accidents promptly—failure to do so entails a heavy fine.

There is no trial by jury, and the court takes testimony as an investigating body or commission, usually without the intervention of attorneys representing either interests. The courts are authorized to appoint medical examiners and experts, and examination cannot be refused.

Awards, pensions, allowances and expenses are paid promptly by the Post-Office Savings Bank, on vouchers issued by the courts or by the trustees of the trade groups. The bank is reimbursed once a year by the trade organizations, without payment of interest charges, in the manner indicated in a subsequent paragraph.

The various industries are organized into *groups of trade units*, based on a careful study of their coefficients of risk, and the common interests of each group are in the hands of trustees, who collect fines and assessments, disburse money, make reports, recommend rules, and serve as the medium of intercourse, not only between the trade groups and the Bureau of Insurance, but also between the employers and the trade unions. The groups, although possessed of a certain limited internal autonomy, are under the direct supervision of the bureau. Operating under and reporting to the trade groups are committees, whose duty it is to adjust questions of minor injury, and who cooperate with the surgeon and with representative committees from the workmen, in the determination of extent of injury and proper period of disability.

Should no agreement be reached between the injured workman and the trade committee, the case is carried before a Court for Industrial Claims, having full authority to call lay and expert witnesses, and to assess damages. Inasmuch, however, as questions of negligence never arise, except where its extreme or criminal character sends the case before another tribunal, the duty of the Insurance Courts consists largely in a determination of the injury and the extent of disability arising therefrom.

Ex-gr. The Insurance Bureau has ruled that a person developing a "traumatic" hernia (whatever that is), in consequence of his occupation, receives a pension equal to 10 to 15 per cent. of his normal wage (300 times the average daily wage) during his disablement, whether he wears a truss or not. The following interesting question is the basis of a difference of opinion between the Bureau and the Insurance Courts: Whether refusal to accept operation should lead to a suspension of the pension? The Bureau holds that it should not.

The amount of assessment—which includes both the annual liquidation and a contribution to the reserve fund—paid by the trade groups and by the industrial units comprising each group, is determined by the bureau, after a periodical study of the statistics and of the annual liquidation with the Post-Office Savings Bank. The groups are allowed to graduate assessments against members according to the statistical records of each member, and *danger classes* are authorized, in which are included especially dangerous trades, as well as those industrial units whose acci-

dent statistics are high. A transfer of a trade unit can be made from a higher to a lower class, if it can be shown that his statistical record for a given period warrants such transfer.

In order to stimulate still farther the effort to reduce the number of accidents, committees representing both employers and workmen are designated to cooperate with the bureau in the preparation of rules and penalties for the prevention of accidents. These rules have full legal force. Fines go into the fund for insurance against sickness.

Should a trade group be called on to pay indemnity for an injury sustained through the carelessness, negligence or intent of one of its units, which has been proved in the Criminal Court, or which the group through its authorized representatives has been able to demonstrate, redress is allowed the organization against the trade unit, by which the former is reimbursed for any money paid out to meet the unusual loss. This redress applies, however, only to proved criminal negligence or intent of the employer himself, and not to that of his representatives. Since such damages may have to be liquidated by the payment of a lump sum, trade groups are allowed to take out private insurance against these unusual losses.

For all those workmen earning 2,000 marks and under by manual labor, insurance in a Sickness Insurance Fund is also compulsory and guarantees protection against sickness, old age, invalidism and against the first thirteen weeks of disability resulting from injuries. To this fund the workmen contribute two-thirds and the employer one-third. During four weeks of his disability the workman receives from this fund 50 per cent. of his average wage for total disability, and a proportionate amount for partial disability. If disabled for more than four weeks, to this amount paid from the sick fund is added $16\frac{2}{3}$ per cent., paid by the trade group (employer) up to the end of the thirteenth week. During this period the expense of medical and surgical care is paid out of the sickness fund.

It will be noticed that the workman's own share toward his maintenance during recovery from injuries is represented in his contribution of two-thirds to the sick fund. Recollect, however, that this payment is made also for other and entirely personal conditions of disablement, while a large proportion of the contribution of one-third which the employer makes must go toward caring for disabilities which he has had no share in causing. If no sickness insurance system is in force covering certain employes of certain industries, the entire care of the injured workman falls on the employer or his group. Against such contingencies the employer or the group is entitled to take out private insurance, but in the adjustment of the indemnity the insurance company has no right to interfere with the usual stipulations and operation of the law.

Insurance against accidental injury is compulsory for all those earning 3,000 marks, or under, by manual labor. Assessments to meet the requirements of this fund—reserve, administration, pensions, death losses, surgical and funeral expenses, weekly indemnities beyond the fourth and thirteenth weeks of disability—are levied altogether against the employers, and are payable at the end of each year by the units to the

trade group, and by the latter into the Postal Savings Bank on receipt of a yearly statement of moneys disbursed. The government through the Post-Office Bank, thus becomes the guarantor of the scheme. Disbursements are made by the bank, in advance of the yearly assessments, upon presentation of suitable vouchers from the trade association, from the courts, or from the Bureau of Industrial Insurance. The bank charges no interest, and no money, beyond the reserve fund, is tied up in advance to meet the payments.

For all injuries received during employment—regardless of ordinary negligence or of any former liability under the common law—the workman receives compensation, unless the disability is not more than four days, or unless it arises in consequences of gross negligence or an illegal act—in such latter cases the compensation may be either refused or reduced.

After the thirteenth week, the employer—or the trade group—meets the entire disability expense. For total disability the employee receives 60 per cent. of his average wage if under 1,500 marks; if over 1,500 marks, he receives compensation based on 60 per cent. of 1,500 marks, plus one-third of the excess.¹⁰ If the injured employee is helpless he may receive up to 100 per cent. of his average wage, especially if he was entirely innocent of the cause of his disability. For partial disability, an estimated payment is made, based on the amount of disability, and the latter is not held to be represented strictly by loss in earning capacity (e. g., hernia, piles, one finger, etc.)

If he wishes, the injured party may elect to be maintained at a hospital or home for disabled. Pensions up to 15 per cent. of the average earnings may be paid off *en bloc* through the Post-Office Savings Bank, by estimating the value of a principal producing the given pension.

Funeral expenses are paid by the trade group (employer), and are graduated from a minimum of 50 marks up to one-fifth of the average annual earnings of the dead workman.

Death pensions are payable to dependent heirs up to 60 per cent. of the annual wage, if the latter is less than 1,500 marks. If over 1,500 marks, only one-third of the excess is taken in making the computation.¹⁰ The wife's pension is 20 per cent. or more, and the balance may go to children, needy dependents and grandchildren.

Only under certain conditions, and in especial cases where permission is given by statute, may private insurance be taken out. In the small industries, not joined to the trade groups, such insurance is permitted, and groups may insure themselves against certain claims arising through extra hazard or through prosecution of their units for criminal negligence, etc. But no insurance company or its agent is allowed to take part in the settlement, or in any way to come between the parties to the dispute.

Should changes arise in the condition of a workman receiving a pension, which are attributable to the injury upon which the pension was originally based, the amount of the pension may, after five years, by an order of court, and after suitable investigation, be increased or diminished.

10. Sixty per cent. of $(1500 + \frac{1}{3})$

Suits conducted under the ordinary processes of civil law are barred from the Courts for Industrial Claims, except only where such arise through disputes over the division of awards, family rights, etc.

Distribution of the assessment load, and representation of Employers and Workmen in the personnel of the Bureau and Courts:

The insured workmen have their own trade organizations (trade unions), and are not represented in the incorporated trade groups of employers.

In the preparation of regulations, etc., designed to secure better protection against accidents, workmen's committees meet committees from the employers and the representatives of the Insurance Bureau.

The workmen carry none of the load arising through pensions, death claims, administration, or for disability allowances and surgical attention after the thirteenth week. To the expense of his care for the first thirteen weeks, the workman contributes such a proportion of the two-thirds which he furnishes to the Sickness Insurance Fund, as would be represented by the ratio which the expenditure for traumatic disability bears to the amount taken from the fund for the relief of sickness. This proportion when worked out is an extremely small one, and the relative charge against the workman appears still less, when we discover from a study of the statistics that the bill for the care of injured workmen during thirteen weeks or under, is only 8 per cent. of the total accident insurance load. It should be remembered, also, that not only does the employer contribute to this 8 per cent., but he also contributes one-third to the entire sickness charge. Thus, the actual contribution of the workman toward his maintenance during disability through accident is extremely small, and is more than offset by the employer's contribution to the fund for sickness.

On account, however, of this contribution, the workman receives a limited representation in, and takes part in the deliberations of the Insurance Bureau, to the extent of two members periodically designated by the Bundesrath. Very different, on the other hand, is his status in the Claims Court; for here he receives equal representation with the employer, since his claims, or his rights, are not based on any money paid into a fund—which exists merely for the purpose of liquidating such claims—but on the cash annuity value of the earning capacity which he has been deprived of through the accident, and which under the law must be liquidated irrespective of responsibility.

VIII.

The writer has endeavored in the foregoing sections to furnish, in brief, such a résumé of the German Industrial Accident Insurance Law as will render its requirements and operation intelligible to the student who has not the time to study its details more thoroughly. The law cannot be recommended to those who are in search of light summer reading. As compared with the five and three pages of our own Federal Employers' Liability Acts of 1906 and 1907, or with the English Workmen's Compensation Act of 1906, of 22 pages, including all schedules and other details; or with the French Law of 34 articles, it is a truly

monumental document of 165 sections and numerous subsections, to which are added a Building and Accident Insurance Law of 48 sections, and various imperial orders, schedules, ordinances, report forms, etc., prescribing down to the minutest details the machinery by which the law is to be carried into effect.¹¹

The intricacy of the German law is apt to produce, at first sight, an unfavorable impression upon the American mind—accustomed as it is to short laws merely setting forth general principles, designed to be left for application and details largely to the interpretation and individual judgment of courts or commissions. Yet the American critic is forced to suspend judgment, when he realizes that through these laws the young German empire has become a pioneer for all other nations except China, Turkey, Persia—and the United States. Since 1884, 22 other governments have followed the lead of Germany in enactments providing for some form of industrial insurance. In Germany the system has passed through twenty-five years of probation, and none of its ramifications show at the present time any sign of breakdown. Although there has been much malingering, both of sickness and of injury, these forms of social pathology have served simply to sharpen the wits of courts and medical experts. In Germany and France an entirely new branch of medicolegal literature has sprung up, devoted to the consideration of industrial accidents and diseases, and the methods by which they are simulated.¹²

A true test of the success or failure of the operation of any law depends on the degree of contentment of those reached by its heaviest restrictions and requirements. Applying this test, the general opinion held by German manufacturers is that compulsory accident insurance, despite the burden and expense, tends to the improvement of industry, not only through the relief which it offers in the prompt settlement and lessened expense of claims for damage on account of trade injuries, but also on account of the better and more friendly relations brought about between employers and workmen through removal of an old and troublesome bone of contention. Under this law, and probably largely in consequence of it, Germany has risen during the last twenty years from the rank of ninth to that of third among exporting countries.

From the American standpoint, a closer scrutiny of these fundamentally different methods of stating legal truth leads to two lines of comment, both favorable to the German system. First, in an industrial community as complicated as that existing in the German Empire, and such as ours is rapidly becoming, Justice is best administered along pre-arranged lines, laid down by those who are technically familiar with industrial intricacies and weak points. For a governing body to guaran-

11. So far as the writer is aware, the law has never been completely translated into English. Owing to the technical and idiomatic character of the text the translation is a very difficult one, and such as would strain the vocabulary of the most accomplished linguist. The Law, with an Introduction and brief comments in small type by Woedtké, Director in the Imperial Department of the Interior, is contained in an octavo volume of 569 pages, Berlin, 1901, 7th edition.

12. Golobiewski, *Diseases Caused by Accident*. Berger, *Les Hernies et les Accidents du Travail*. Sultan, *On Hernia* (Trans. by W. B. Coley). *Les Accidents du Travail*, G. Ollive, Paris, 1904. Rene Sand, *La Simulation et L'Interpretation des Accidents du Travail*, Bruxelles, 1907. *Handbuch der Unfall Medizin mit Berucksichtigung der Unfallversicherung*, Stuttgart, 1907. Paul Chavigny, *Diagnostic des Maladies Simulées dans les Accidents du Travail*, Paris, 1906.

tee that Justice shall reach its right destination every time, in such a labyrinth, requires that the details and branchings of the path shall be placed beyond the possibility of judicial error in finding the way. To be sure, individual talent—either upon the bench, or brought to bear upon the judiciary—has less opportunity, under this system, of winning distinction, through brilliant and far-reaching interpretation and application of legal principles. But, on the other hand, the individual before the bar is comforted with the certainty that Justice, in his particular case, is not to be sidetracked through some twist which the judicial mind may choose, or be persuaded to give to a loosely constructed law.¹³

In this respect the German law is like all other native German products—complete as a whole, with details worked down to ultimate dividing points.

One instance out of many will suffice to illustrate this useful elaboration of details. Provision is made by which a trade group of employers can recover from one of its units, which has been proved to have violated certain safety ordinances or certain provisions of the criminal law, such moneys as the group has been obliged to pay, under the law, to the employé injured through such violation. Thus, the injured and needy employé receives his "rental" automatically and immediately through the Postal Savings Bank, the trade group is sure of reimbursement within a reasonable time, and the negligent employer is penalized, not only by the fine imposed on him by the court and by having to reimburse the association in addition to his usual assessment, but also by finding himself, through his negligence, in bad odor among his business associates and competitors. This enforced interpretation of the doctrine of negligence would hardly appeal to those American corporations which practice the "philosophy of individualism" for what there is in it.

A second line of comment is suggested, when we consider the evils which have arisen in England and in our own country, through this failure of the laws to specialize *pari passu* with the specialization of the commonwealth and its industries. Nearly all of our own American industrial troubles, arising not only through accidents, but also at every other point of contact between employers and workmen, have occurred through lack of specific legislative formulas by which such occurrences could be adjusted along pre-ordained lines. Our courts have for a long time lacked suitable statutory material out of which to construct their decisions, and in this way have been led to read strained and unnatural meanings into the simple laws which sufficed to hold together the primitive society of our "hand-made forefathers." Enough has been said by others relative to the fact that, in spite of an overweening respect for beaten paths, the legal mind, when placed upon the bench, is still no more than human in its tendency to err and err again when wandering into new fields. The traditional judicial obstinacy in persistently thrusting industrial feet into outgrown common-law shoes has also been sufficiently dwelt

13. Not to multiply illustrations to convince the reader that this criticism is not a fanciful one, it is only necessary to remind him that Chief Justice Marshall—swayed by the ponderous eloquence of Daniel Webster—delivered in the Dartmouth College Case the most far-fetched and far-reaching decision that has ever brought oppression to a corporation-ridden American public.

upon not to require further amplification. But it must be said that, after all, the duty of the courts, even in this country of wide-reaching application of common-law principles, goes no farther than to interpret such laws as actually exist, and does not in any way concern itself with suggesting or enacting new legal formulas.

So that whether we scrutinize the elaborate constructiveness of the German laws, which leave nothing for the bench to sharpen its wits upon, or the studied simplicity of our own moss-grown edifice, which is so far out of plumb that it has come to lean too heavily upon the judicial imagination, and fails utterly to furnish any true shelter for many recent and important problems, we are impressed with the vast superiority of the German method of dealing with these difficulties over such primitive methods as are at present available in the United States. The only question which arises is, how much of this method would thrive, if grafted into such a widely variant species of commonwealth as our own? To this question we will recur in discussing the direction to be taken in planning for the future betterment of our own system.

ILLINOIS STATE MEDICAL SOCIETY; QUARTERLY SESSION OF THE COUNCIL

The council in quarterly session convened at the Great Northern Hotel, Chicago, on October 14, at 10:30 a. m. There were present Chairman Black, Newcomb, Percy, Roans, Stealey, Mitchell, Harris and Pettit, President Wiggins and Secretary Weis, by invitation, S. C. Glidden, Benjamin Gleeson of the Committee of Arrangements, and Editor Kreider.

Chairman S. C. Glidden was asked to make a report of the work so far done by his committee. He also presented the names of the committee in full as follows: Stephen C. Glidden, chairman; E. B. Cooley, H. S. Babcock, Benjamin Gleeson, C. E. Wilkinson, A. M. Miller, R. A. Cloyd and Frank Barton. Upon motion, the election of this committee of arrangements by the Vermilion County Medical Society stands approved.

President Wiggins reported upon the question of change of date of the coming meeting. He stated that owing to the fact that the meeting of the A. M. A. is the same as in former years, he thought it unadvisable to change the date of our annual meeting.

Secretary Weis reported as follows, as a committee on a working plan of a Lecture Bureau:

Your committee on formulating a scheme for the establishment of a Lecture Bureau begs leave to say that the following-named physicians (see list below) in Chicago, St. Louis and the various cities throughout the state have consented to the terms suggested, i. e., that each one stands ready to respond to a call to present a paper or a lecture to any of the county and district society meetings without expense to the local society. This list will be added to by volunteers and others.

In outlining the method. I beg that you will understand that this is just tentative, and may and perhaps must be changed by different conditions arising from time to time.

In the first place, I shall send a circular letter to every secretary, giving the names of those who will respond to call, suggesting, however, that a selection should be made of the physician nearest to him.

Second. Give him the choice of three or four names, should it be that the first choice would find it impossible to come.

Third. Every secretary in making application shall state the place, the time and probable attendance.

Fourth. At least three weeks' notice must be given.

Fifth. There shall be a standing notice published in *THE JOURNAL* in relation to the Lecture Bureau.

Sixth. There shall be an implied pledge on the part of the secretary of the local society to forward the minutes of each meeting to the editor for publication.

E. W. WEIS, Committee.

SURGERY.

John B. Murphy, Chicago.
E. J. Senn, Chicago.
M. L. Harris, Chicago.
Cassius D. Rogers, Chicago.
A. E. Halstead, Chicago.
F. A. Beasley, Chicago.
William Hessert, Chicago.
J. L. Wiggins, East St. Louis.
George W. Cole, St. Louis.
William Bartlett, St. Louis.
Francis Reder, St. Louis.

Carl E. Black, Jacksonville.
E. Mammen, Bloomington.
J. W. Hamilton, Mt. Vernon.
J. H. Stealy, Freeport.
C. U. Collins, Peoria.
J. F. Percy, Galesburg.
Geo. N. Kreider, Springfield.
R. J. Christie, Quincy.
S. C. Stremmel, Macomb.
H. C. Mitchell, Carbondale.

OBSTETRICS.

Joseph B. DeLee, Chicago.
Carey Culbertson, Chicago.

Hugo Ehrenfest, St. Louis.

GENITOURINARY.

L. E. Schmidt, Chicago.

C. E. Buford, St. Louis.

MEDICINE.

Frederick Tice, Chicago.
Arthur R. Edwards, Chicago.
Alfred C. Crofton, Chicago.
J. T. McAnally, Carbondale, Ill.
Frank Billings, Chicago.
J. F. Percy, Galesburg, Ill.

J. W. Hamilton, Mt. Vernon, Ill.
George A. Zeller, Peoria.
J. W. Pettit, Ottawa.
Hugo Summa, St. Louis.
J. S. Myer, St. Louis.
Albert E. Taussig, St. Louis.

EAR, NOSE AND THROAT.

Albert H. Andrews, Chicago.
F. Gurney Stubbs, Chicago.
John R. Fletcher, Chicago.

C. M. Robertson, Chicago.
W. E. Sauer, St. Louis.
M. A. Goldstein, St. Louis.

EYE.

Willis O. Nance, Chicago.
W. Allen Barr, Chicago.
Thomas Faith, Chicago.

Meyer Weiner, St. Louis.
John Green, Jr., St. Louis.

SKIN.

Oliver S. Ormsby, Chicago.
R. R. Campbell, Chicago.

W. A. Pusey, Chicago.

NEUROLOGY.

Hugh T. Patrick, Chicago.
L. Harrison Mettler, Chicago.
Geo. A. Zeller, Peoria.

Frank P. Norbury, Kankakee.
V. H. Podstata, Elgin.
W. W. Graves, St. Louis.

RECTUM.

J. Rawson Pennington, Chicago.

PEDIATRICS.

Alfred C. Cotton, Chicago.

J. Warren Van Derslice, Chicago.

ORTHOPEDICS.

Alex. C. Wiener, Chicago.
John L. Porter, Chicago.

John Ridlon, Chicago.

PATHOLOGY.

R. L. Thompson, St. Louis.

STOMACH.

H. W. Soper, St. Louis.

ORGANIZATION.

H. C. Mitchell, Carbondale, Ill.
J. W. Pettit, Ottawa.

E. W. Weis, Ottawa.

It is moved by Harris and seconded that the plan outlined as above be adopted.

Chairman Black made a report that he had moved in the matter of supplying directories to each member of the State Society. It is moved by Pettit and seconded by Stealy that the action of Black be approved. Carried.

Committee on Vouchers, Harris, Black and Brown, presented a system of double voucher and check, such as is now used by the A. M. A. It is moved and carried that this plan be adopted by the Illinois State Medical Society.

After considerable discussion on the subject of whether the Medico-legal Committee should pay whatever judgments may be entered up against members, it is moved and carried that the secretary be instructed to request the executive committee of the Medico-legal Committee to present at the next meeting of the Council its views and necessary data on the advisability of enlarging the *per capita* tax to cover judgments.

Adjourned.

NOTICE.

LECTURE BUREAU ILLINOIS STATE MEDICAL SOCIETY.

Secretaries and program committees desiring lecturers should communicate directly with the Secretary of the State Medical Society and not with the individual lecturer. They should send in the request in ample time, *at least* three weeks prior to the meeting. Give date, place and probable attendance. Several names should be selected.

Address all communications to Dr. E. W. Weis, Secretary, Ottawa, Ill.

ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF THE ILLINOIS STATE MEDICAL SOCIETY.

GENERAL OFFICERS 1909-10

PRESIDENT - JONATHAN L. WIGGINS, EAST ST. LOUIS
FIRST VICE-PRESIDENT - CLIFFORD U. COLLINS, PEORIA
SECOND VICE-PRESIDENT - JAMES E. STUBBS, CHICAGO
SECRETARY - EDMUND W. WEIS, OTTAWA
TREASURER - EVERETT J. BROWN, DECATUR
(Ex-officio Clerk of the Council.)

EDITOR - GEORGE N. KREIDER, SPRINGFIELD
522 Capitol Avenue.

ASSISTANT EDITOR - GEORGE EDWIN BAXTER, CHICAGO
4603 Evanston Avenue.

THE COUNCIL

CARL E. BLACK, JACKSONVILLE.	J. WHITEFIELD SMITH, BLOOMINGTON.
H. C. MITCHELL, CARBONDALE.	J. Q. ROANE, CARLYLE.
M. L. HARRIS, CHICAGO.	J. W. PETTIT, OTTAWA.
J. F. PERCY, GALESBURG.	J. H. STEALY, FREEPORT.
W. K. NEWCOMB, CHAMPAIGN.	

NOVEMBER, 1909.

OUR LONDON CORRESPONDENCE.

In another column will be found an interesting communication from London, England, contributed by Dr. Nelson M. Percy, Jr., surgeon to Augustana Hospital, Chicago, who is devoting some time to surgery in the English metropolis. This letter will be found extremely interesting as giving an accurate account of the work being done in the best hospitals there. Especially interesting will be found Dr. Percy's account of the clinic of Arbuthnot Lane, whom he found treating all cases of simple fractures by operative means and the use of a steel plate, which is fastened to the bone by steel screws. It appears from this that we have reached a point where all fractures can best be treated by operation, and it will not be surprising that a few years would radically change our views on the method of treating broken bones. Certainly the results obtained by Dr. Lane should call the attention of all surgeons to the benefits of immediate operation. Splints are rarely used at this clinic. Dr. Percy has seemingly obtained unusual opportunities for meeting the best class of foreign surgeons, and THE JOURNAL is to be congratulated on having the privilege to print his communications. We are indebted to Dr. E. A. Ochsner for this opportunity. Other letters will follow from time to time.

LEGISLATION CONCERNING OPTICIANS.

At the May meeting of the Chicago Ophthalmological Society, Dr. Frank Allport in the chair, there was an interesting discussion of the present status of legislation concerning opticians, and Dr. E. V. L. Brown recommended that it might be well to secure a compromise between the society and opticians so that a law placing the opticians under the authority of the State Board of Health might be agreed upon. It was with great difficulty that the bills licensing opticians independent of the profession were defeated in 1905, 1907 and 1909, and it is altogether probable that an effort will be made again before the next regular session which will be successful. There is no doubt that the fitting of glasses is a branch of the practice of medicine and that it would be much better if the opticians were regularly educated and licensed as physicians, but so far has this practice of optometry proceeded that it would be almost impossible to put these persons out of business, and if they cannot be put out of business for the common good they should be limited in their practice, and, moreover, a large number of ignorant traveling spectacle venders should be prevented from swindling the people. We hope, therefore, that some arrangement may be entered into between the ophthalmologists and the opticians before the next regular session of the legislature which will be mutually satisfactory to the different organizations and at the same time conserve the rights of the people.

BEWARE OF SWINDLER.

Dr. H. C. Mitchell, of Carbondale, writes us that he is again put to the annoyance of having a swindler call upon his professional friends in various parts of the state purporting to be a son of his and asking for money on his, Dr. Mitchell's, account. A number of professional gentlemen have already been held up for loans of various amounts, and the Doctor is anxious that all physicians in the state should have a description of this person in order that he may be apprehended and put in custody. The facts of the case are as follows:

About one year ago this man came to Dr. Mitchell's office and asked him for a loan, saying he was on his way home to Bowling Green, Ky., where his father, Dr. McCormack, lived. Dr. Mitchell asked him a number of questions, which he answered to his satisfaction, and finally gave him \$10. He thought nothing more of the transaction for several weeks, when he failed to receive the money as promised. He then wrote to Dr. McCormack and received an answer that nothing was known of this party. In a very short time after this Dr. Mitchell began receiving letters from physicians all over the State of Illinois, saying that a young man of this description had called upon them, representing that he was Dr. Mitchell's son, and had in nearly every instance obtained a loan which they expected Dr. Mitchell to return. Most of them, however, had not been as generous as Dr. Mitchell, but had all given him something, except Dr. Everett J. Brown, of Decatur, who, suspecting that he

was an impostor, slipped out of his office and called up Carbondale by telephone, but unfortunately could not locate Dr. Mitchell. Had he succeeded, the gentleman would have been placed under arrest.

This party has undoubtedly found that doctors are an easy mark for this kind of prey and had started another campaign of the same kind this winter.

The swindler is said to be a tall man with wavy black hair, black eyes and rather good looking. His forehead is rather high and somewhat retreating. He looks to be about 25 years old and dresses quite well. Should any of our readers be approached by such a person, it would be well to call the police and put him under arrest as a swindler.

LADIES' AUXILIARY TO COUNTY MEDICAL SOCIETIES.

The Menard County Medical Society has branched out in a new way by the formation of a ladies' auxiliary, which has already held several meetings, both with and without the gentlemen. The success of this enterprise has been so marked that in all probability it will be continued. It is believed that the friendly feeling existing among the physicians in that association has been enhanced by the fact that their wives have become better acquainted, and have urged upon their husbands the desirability of continuing the scientific organization. It might be well for the ladies in other counties to undertake a similar movement.

LECTURE BUREAU OF THE STATE SOCIETY.

Elsewhere in our columns will be found the report of the committee at the recent meeting of the Council of the State Society, launching the project of a lecture bureau to be under the direction of the secretary of the State Society, and the lectures to be provided by volunteers from the larger cities of the state. The secretary wishes it distinctly understood that the list of lectures given is simply a start, and that any member of the State Society is eligible to have his name placed upon this list upon application to him.

It is believed by this means increased interest will be created in all of the meetings of the county societies, and the benefits to be derived will be in proportion to the alacrity with which the secretary and the program committees take hold of the plan.

It is understood that societies securing the services of the lecturers will report promptly in the columns of *THE JOURNAL* the results of the meetings, both for the benefit of the society in question and other societies contemplating the use of the services of the different gentlemen.

Other items of interest at the meeting of the Council were when Chairman Black was authorized to distribute to every member of the State Society a directory giving the names of all physicians in the state.

Arrangements were also made to canvass the advisability of levying an assessment for medical defense sufficiently large to pay any judgments which may be assessed as a result of malpractice suits. Many hundreds of physicians in the state are paying from \$10 to \$15 a year into the hands of insurance organizations for protection, which is little better, if any, than that which can be afforded by the State Society at a very small cost.

The present plan of medical defense has proved so successful that it is altogether probable a further advance along this line will be undertaken by the State Society in the near future.

Correspondence.

LONDON LETTER.

NELSON M. PERCY, M.D.

Junior Surgeon to Augustana Hospital; Attending Surgeon to St. Mary's Hospital;
Instructor in Surgery, College of Physicians and Surgeons.

CHICAGO.

LONDON, Oct. 3, 1909.

VISIT TO THE CLINIC OF MR. ARBUTHNOT LANE.

Mr. Lane is very expert in his bone work. I have seen him use his steel plates in ten cases. He uses them in all cases of simple fractures. His results are most excellent. In simple fractures he never has to remove the plate, except occasionally, from the lower portion of the tibia in a laboring man who wears large boots. In compound fractures with infection he does not use plates unless he finds it impossible to secure fair apposition without. In these cases he usually has to remove the plates later. In recent compound fractures, he vaccinates the patient with staphylococcus before operating. He uses steel plates and screws, heavy enough to be very stiff. His success in simple fractures depends upon his very excellent aseptic technic. He operates without a constrictor, makes a long skin incision and then fastens gauze pads to edges of skin with special clips, walling off the wound completely from the surrounding skin. The entire operation is performed by instruments, nothing else touching the wound, not even the gloved finger. All sponges are handled with instruments, also the plates and screws. The bones are placed in perfect position by large special bone forceps. He uses no ligatures, and rarely any sutures. If the sutures are used they are handled entirely by instruments. Hemorrhage is controlled by crushing forceps. He closes the skin with clips. The bones are held so firmly by plaster that he rarely uses any splints in the dressing.

I saw a number of these cases operated on two or three weeks ago, and the wounds were all absolutely perfect. The interne told me that Mr. Lane never has the slightest infection in these cases. He does the

operation quickly. I saw him operate on two femora, a humerus and a radius in two hours. He takes *x-ray* pictures of all cases before and again the next day after the operation. Yesterday I saw the picture of a humerus and a femur operated on the day before. They were very clear, but the position was so perfect that we could not see the line of fracture. He operated on an ununited fracture of the radius yesterday. It looked fine. The plate holds the bone so firmly that the patient can use the arm immediately. All in all, I was very well impressed with his bone work.

Mr. Lane does a great many cleft palate operations. I have seen him operate on eleven of these cases. He does them quickly. Friday morning he operated on five cases in two hours. He prefers to operate during the first few days of life, for three reasons: 1. The mortality is high without operation, and few cases live to be two years old without an operation (in bad double clefts). Mortality with operation at early date is only 10 per cent. 2. Better immediate results with the early operation. 3. Better ultimate results are secured with the early operation.

Cleft Palate Operation.—On one side he raises a flap, including periosteum, beginning at the edge of the cleft and dissecting toward the alveolar process. On the opposite side he makes a flap toward the edge of the cleft. This flap is folded backward and the first flap sutured down on top of it by fine silk sutures. The sutures are placed the same as in overlapping in umbilical hernia operations. In the bad double cases the anterior portion of the cleft is closed by dissecting the greater portion of the skin and mucous membrane from the mandibular process and folding it backward into the roof of the mouth. In making this flap he leaves a small portion of the skin over the center of the mandibular process just below the nasal septum. He also utilizes the flap of the mucous membrane obtained by freshening the edges of the cleft in the lip. In repairing the lip he leaves the portion of the skin over the center of the mandibular process as an island in the center of the lip. In about 40 per cent. of his cases he has to perform a secondary operation upon the soft palate. The anterior portion of the cleft practically always heals completely at the primary operation. I think some of the failures in the soft palate are due to tying sutures too tightly.

Mr. Lane has done some appendix operations during my visit to his clinic, but there is nothing of importance connected with these.

Mr. Lane is very enthusiastic about his excision of the colon for chronic constipation with autointoxication. When the colon is dilated and long he makes an excision of the entire large bowel as far as the sigmoid flexure. In some cases where the colon is not long, he simply makes an anastomosis between the sigmoid and small intestine. I have seen him operate on two cases and have seen six other cases which he operated on from two to six weeks ago. All of the cases were doing well. All of them said they were greatly improved. His indications for operation are, chiefly, chronic constipation, emaciation, muddy complexion, flabby skin, cold hands, the coldness extending to the elbow and often to just below the shoulder. The cases I saw in the ward were supposed to

have all of these signs before operation. When I saw them they were all feeling well and the extremities were warm. I think Mr. Lane is over-enthusiastic about these cases, but I am convinced that there is something in it and that many of these patients are greatly benefited by the excision of the large intestine.

MR. FREYER'S CLINIC.

I have seen Mr. Freyer twice. He does splendid work. He does nothing but the suprapubic prostatectomy. He says it is impossible to remove the entire prostate by the perineal route without removing a considerable portion of the bladder wall. He has the prostate out in from two to four minutes from the time he makes his first incision. He distends the bladder with water, makes a three-inch incision, separates the recti muscles, then while he pushes the peritoneum upward with two fingers of one hand he makes an incision with a scalpel in the other into the bladder. He removes the entire prostate in one piece and irrigates the bladder with hot water until the hemorrhage is controlled. There is very little bleeding. He drains the bladder with a large rubber tube three quarters of an inch in diameter, sutures the skin wound tightly around the tube and attaches it to the tube. He places no sutures in the bladder. If I could do the operation as he can I would be converted to the suprapubic method.

He had a case of prostatic stones, with two perineal fistulæ. He removed 12 good-sized stones from the prostate through the perineum and laid open the fistulous tracts. There were no stones in the bladder. The stones were of the yellow smooth type "characteristic" of prostatic stones. He drained the bladder by inserting a half-inch stiff rubber tube.

I have seen him operate upon four cases of stricture of the urethra. but there was nothing of importance about these, except in one case of stricture in which he performed an external urethrotomy and drained the bladder by inserting a large catheter down through the urethra and fastening it in place. He places a catheter in all cases of stricture.

MR. LYNN THOMAS' CLINIC.

I went over to Cardiff, Wales, on Friday and had a most interesting day with Lynn Thomas. He had a patient with a very large goiter and a cretin. He transplanted the thyroid gland removed from the former into the latter patient. He used continuous ether anesthesia and did a very nice thyroidectomy. He was extremely careful about all blood vessels and had practically no hemorrhage. He drained with a glass tube, but used no gauze for drainage. As soon as the thyroid gland was removed it was placed in warm normal salt solution. The cretin was anesthetized and each tibia opened by a trephine half an inch in diameter. The hole was drilled into the center of the tibia and the bottom of this cavity was enlarged somewhat by a sharp curette. All hemorrhage was controlled by gauze packs; then the cavity in each bone was filled with thyroid tissue, the periosteum was sutured over the hole in the bone and the wound was closed. Mr. Thomas has operated on three of these cases, one eighteen months ago and the other two about six months ago. All of these cases are doing well. They had all been given thyroid extract

before the operation with benefit. In all of the cases in which thyroid administration was stopped before implanting thyroid tissue the patient did not do well. None of these cases have had any thyroid extract since the operation.

I saw another most interesting case, a woman, aged 50 years. Two years ago Mr. Thomas removed the entire thyroid gland for carcinoma. Symptoms of tetany developed in twenty-four hours. These symptoms disappeared upon administration of thyroid extract, which was continued for one year, and the symptoms returned immediately after its withdrawal. Thyroid extract was administered again and continued for six months. She has taken no thyroid extract for six months now and is perfectly well. No explanation has been offered as to why she can get on without thyroid extract now, but could not one year ago.

Mr. Thomas also had an interesting case of appendicitis which had been diagnosed as kidney stone. The *x*-ray showed a stone very distinctly, 2 cm. long and 1 cm. thick, situated midway between the crest of the ilium and the twelfth rib, three inches to the right of the spine. One could see the outline of the kidney clearly above this region. For this reason an anterior incision was made. The appendix was found behind the cecum and adherent to the lumbar muscles, and contained this large stone. The stone was composed of a crystalline substance, resembling a cholesterol gall-stone which must have been formed in the appendix.

Mr. Thomas performed a Lucas-Championnière herniotomy. The latter claims never to have recurrences. He ligates and excises the hernial sac, leaves the ligature long and by means of this ligature threaded on a needle pulls the stump of sac up behind internal oblique abdominal muscle, where it is fastened by suturing up through the muscle. He places no other stitches in the internal oblique muscle, but closes the hernia by simply overlapping the external oblique. The lower stitch used in the overlapping also passes through the conjoined tendon.

I also saw him operate on a case of carcinoma of the breast and one of a large ovarian cyst in which there was nothing unusual to report. Mr. Thomas wears cotton gloves. His asepsis and technique are very good. He is the only man I have seen who takes off his citizen's clothes while he operates.

He applies a paste of iodoform and bismuth to all wounds and claims that it prevents any redness about the stitches. I saw several wounds and they were all perfect.

MR. BLAND SUTTON'S CLINIC.

I have seen Mr. Sutton do some work. He is a rapid operator. He did an abdominal hysterectomy very nicely, but used heavy silk for everything; no catgut. He closes the abdominal wounds with one row of through-and-through heavy silk sutures.

In a case of pylorotomy for old ulcer he removed only one-half an inch of tissue on either side of the pylorus and made an end-to-end anastomosis. The entire operation consumed only fifteen to twenty minutes. He used only two pairs of forceps. These were placed obliquely across the duodenum and pyloric end of the stomach, respectively, the end of the

two forceps coming together behind the pylorus. These forceps acted as both hemostats and anastomosis forceps.

I also saw Mr. Handley do some cases of tuberculosis of the hip with abscess. He opened the abscess, evacuated the pus and closed the wound completely without introducing any form of medication.

BEWARE THE BOOK THIEF

To the Editor: Last June I had three books stolen from my office, one a Casey Wood's "Ophthalmic Therapeutics," Ballenger's "Ear, Nose and Throat" and Barnhill's "Modern Otology." These were taken by a tall, medium-weight man with dark hair and moustache slightly gray. He was of good address and carried a brown grip. He came at the lunch hour and was seen by the elevator boy, who took him for a book agent.

In August I found the "Ophthalmic Therapeutics" in a Chicago store and if I can find who purchased the other two I may be able to locate the thief and thus stop his work. I do not care for the books, but would like to know who bought them.

The above information may save other members the loss of books.

Fraternally yours,

J. A. PRATT, M.D., Aurora, Ill.

REMEMBER THE NATIONAL MAGAZINE.

To the Editor:—During the summer months there has been running a series of articles in the *National Magazine*, edited by Chapple Publishing Co., Boston, entitled "The Doctors' Trust." It seems to me that the attention of the doctors should be called to this article. It should be resented if by nothing more than by the withdrawal of your subscriptions.

Yours truly,

F. T. BRENNER, A.M., M.D., Quincy, Ill.

Oct. 5, 1909.

THE PRESENT STATUS OF OBSTETRICAL TEACHING IN EUROPE AND AMERICA.

The president of the American Gynecological Society has appointed a committee to report at the next annual meeting in Washington on the Present Status of Obstetrical Teaching in Europe and America, and to recommend improvements in the scope and character of the teaching of obstetrics in America.

The committee consists of the professors of obstetrics in Columbia University, University of Pennsylvania, Harvard, Jefferson Medical College, Johns Hopkins University, Cornell University and the University of Chicago.

Communications from anyone interested in the subject will be gladly received by the chairman of the committee, Dr. B. C. Hirst, 1821 Spruce Street, Philadelphia, Pa.

COUNTY AND DISTRICT SOCIETIES

ADAMS COUNTY.

The meeting of the Adams County Medical Society, held September 13, 1909, was an all-day session which began with a gynecologic clinic at Blessing Hospital at 9:30 a. m. This was conducted by Dr. Channing W. Barrett, of Chicago. The case was an excellent one and upon it were demonstrated the following indicated operations: Amputation of the cervix, an anterior colporrhaphy for cystocele, a perineorrhaphy, curettage; through the abdominal incision the round ligaments were shortened by a modified Alexander operation, a diseased ovary and appendix were removed. The entire time for the operations was but one hour and a half. The technique and beautiful results shown were highly instructive and enjoyed by a large attendance of the members. At noon the society had luncheon together at the Hotel Newcomb. In the afternoon the business and scientific session was called to order by President Hart. Those present were Drs. Knapp, Bloomer, Ashton, Christie, Grimes, Gilliland, J. B. and Kirk Shawgo, Ericson, W. W. and J. G. Williams, Spence, Nickerson, Rice, Brenner, Schullian, Ball, Knox, Groves, Mitchell, Montgomery, Zimmermann, Davidson, Koch, Nichols, Haxel, Werner, Wessels, Knapheide and Wells. Also Drs. Mercer, Green and Whipple. There being a vacancy on the Board of Censors caused by the death of Dr. Jos. Robbins, a motion prevailed that it be filled. Drs. Nickerson and Kirk Shawgo were placed in nomination, the vote resulting in the election of the former. Dr. Channing W. Barrett, of Chicago, was then introduced and spoke on the subject of "Perineal Herniotomy in Its Relation to the Cure of Procidentia," in which the following points were emphasized:

1. Prolapse of the pelvic organs is common; very few women passing through childbirth without some degree of traumatism which predisposes to hernia through the vagina.
2. The abdomino-pelvic organs are supported by ligaments and the abdominal walls, the pelvic floor in man being the most important part of the wall, it being the lowest.
3. The tail muscles of the four-footed animals develop into the diaphragm of Meyer—the levator muscles to meet this need of support in man.
4. Atavism and traumatism of the levator ani muscle and its fascia predisposes to hernia by weakening the strong posterior segment and allowing the anterior movable segment to bulge into the opening. These conditions, slight or extreme, constitute some degree of hernia.

To cure these hernias the following points must be observed: A good pelvic floor must be constructed; the vagina must be gotten out of the vertical line; redundancy of vaginal tissue allowing cystocele must be corrected. The uterus must not be left in line with the vagina. If the patient is past child-bearing or the uterus pathologic and the degree of hernia marked, the uterus may be removed, when it is very important that the stump of its ligaments be planted into the upper part of the vagina. If the degree of the prolapse is not marked, the uterus fairly healthy, and especially if the patient is of a child-bearing age, the uterus may be put out of line with the vagina by shortening the round ligaments through the rings or by shortening the sacro-uterine ligaments or in some cases both, or by means of Alexandoff's operation; that is, bringing the lower part of the broad ligaments in front of the cervix per vaginam. If the uterus is left, pathologic conditions in the cervix should be corrected. Cystocele should be corrected, not by scarification but by excision of an elliptical portion of the vaginal wall. In reconstructing a pelvic floor, stress was laid upon going deep enough to get the levator muscle and dealing with this anatomic structure definitely as we

would deal with muscles in the cure of inguinal hernia, bringing them together in the median line between the rectum and vagina. Much stress was also laid upon making the flap at the vagino-vestibular junction, instead of out upon the labia, that the normal vestibule may be preserved and the labia not closed over the vaginal opening. By this procedure the vagina is not closed but crowded forward out of a vertical line and a strong posterior segment created.

The lecture was well illustrated by charts and models and was one of the most interesting and instructive discussions the society has ever had. Dr. Barrett is a clear, lucid speaker and makes every proposition very plain and simple. At the conclusion of his address the speaker replied to many questions, the answers to which brought out many more valuable points. Dr. Gilliland, in moving a vote of thanks to Dr. Barrett, included in his motion that the doctor be elected to honorary membership in the Adams County Branch. The vote of thanks and election were unanimously carried. A vote of appreciation was also given Miss Wheeler and the management of Blessing Hospital for their cooperation and assistance in the matter of the clinic and for past privileges along the same line. On motion the society adjourned.

CLARENCE A. WELLS, Secretary.

COOK COUNTY.

CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY.

Regular Meeting, February 9, 1909.

A regular meeting was held Feb. 9, 1909, with the president, Dr. Henry Gradle, in the chair.

TRAUMATIC DISLOCATION OF THE NOSE AND UPPER LIP.

Dr. W. L. Ballenger reported a case of a man who was carried two hundred feet by a cyclone, falling violently on his face. The nose and upper lip were severed from the face, and in healing the nasal vestibule rested opposite the gums, with the result that there was complete occlusion on one side and a very small opening on the other. As the result of operative intervention the man has now perfect breathing space, and his appearance has been somewhat improved.

REPORT OF A CASE OF RHINOSCLEROMA.

Dr. Stanton A. Friedberg. Female, aged 21, born in Austrian-Poland. First came under observation in February, 1908. Illness had begun about four months previously with a sensation of dryness in the nose. A month later the laryngeal symptoms developed. These consisted of dryness, cough, increasing hoarseness and dyspnea. The first examination showed marked nasal involvement confined principally to the turbinates. No external lesions. Nasopharynx slightly involved. Marked subglottic involvement with limitation of the movements of the vocal cords. Palliative treatment with bougies carried on for about two months when tracheotomy had to be performed. Patient wore a tube for nine months. This has recently been removed. In addition she has had x-ray treatments. Examination at present shows the process in the nose to have reached the terminal stage of contraction. There has been no extension in the nasopharynx. A nodule is found on each posterior pillar in the pharynx. The subglottic swelling has diminished greatly, so that now there is practically no obstruction to the entrance of air. The movements of the vocal cords have been restored to a considerable degree, the right more than the left. Whether the x-ray treatment or the rest obtained by the larynx through the wearing of the tube has brought about the improvement it is impossible to say. Likewise it remains to be seen whether the improvement will be permanent.

Dr. J. C. Beck saw Dr. Friedberg's case of rhinoscleroma before the treatment was begun, and notes a decided improvement. In a case which he had previously seen in Prague the objective findings were not so marked as in Dr. Friedberg's case. A positive diagnosis in these cases is made when one finds the exciting cause. In cases of ordinary papilloma of the vocal cords, Dr. Beck has obtained very good results by forcing physiological rest and inserting a tracheotomy tube.

Dr. F. G. Stubbs referred to a case of rhinoscleroma which he presented to the society two years ago. In this case a very small triangular opening was the only passage through the larynx. When mucus filled this opening the patient could hardly breathe. He dilated with Schrötter's tubes up to No. 3, continuing the dilation for two months. The *x*-ray was also used, but no improvement noted. She was seen a year later, when the conditions remained as they were after the dilation.

Dr. E. L. Kenyon considers that the tawny color of the mucous membrane and the subglottic infiltration are characteristic of rhinoscleroma. He used the *x*-ray on a case where the soft palate was extensively involved, but failed to note any effect, although the treatment was continued a long time. While it is a fact that rhinoscleroma of the outer surface of the nose has been decidedly improved by the *x*-ray, he does not hold that the mucous membrane of the larynx would be similarly affected by the rays passing through the cartilage.

Dr. O. T. Freer does not consider the subglottic infiltration particularly characteristic of rhinoscleroma. He has frequently seen just such swellings in tuberculosis of the larynx.

Dr. R. M. Fletcher has recently seen a number of cases of rhinoscleroma in Vienna, and thinks the findings in Dr. Freer's case are sufficiently characteristic to warrant a diagnosis even without the histological findings.

Dr. Friedberg (in closing) stated that he had employed dilatation for several months, but had only succeeded in introducing a No. 2 Schrötter bougie. The obstruction was so great that he was forced to do a tracheotomy. In regard to the use of the *x*-ray in the case referred to by Dr. Kenyon, he is of the impression that the disease had practically reached the terminal stage before the *x*-ray was applied, and one could hardly expect any treatment to prove effectual under those conditions.

LARYNGEAL CASE FOR DIAGNOSIS.

Dr. S. A. Friedberg:—The patient, man aged 40, first noticed hoarseness about four years ago, which has steadily grown worse. A fair sized bougie can be passed without difficulty. There is an infiltration at the anterior end of the left vocal cord, which appears to be cystic, but no fluid could be withdrawn through the aspirating needle. Infiltration presses the vocal cord outwards.

Dr. H. Kahn does not consider the case a malignant one, but thought the diagnosis of a myoma was suggested both by the history and the slow growth of the tumor.

CAVERNOUS ANGIOMA OF THE BUCCAL CAVITY.

Dr. R. H. Good presented a girl who since birth has had a tumor on the inner aspect of the right cheek, extending from the angle of the mouth back to within one-half inch of the anterior pillars of the fauces. Its color was bluish and surface quite irregular. By pressure the size could be diminished at least one-half. There was no pulsation, no pain or discomfort. Mastication is not interfered with and there have never been hemorrhages.

Dr. Good also exhibited two illustrations of a case of angioma of the tongue.

DISCUSSION.

Dr. Joseph C. Beck referred to a case of angioma of the cheek involving the soft palate, which he presented to this society four years ago. This case had been operated upon by Dr. Senn without securing relief, and later by Dr. Beck. Injections of hot water had failed.

Dr. Carl Beck operated on these cases by inserting interrupted catgut ligatures into the mass, tying these only sufficiently tight to produce gradual starvation of the tumor, and not actual necrosis. Radium had been found of no value in these cases.

Dr. H. Kahn referred to a case of bleeding polyp in the nose, which he had operated on by means of a pursestring suture around the pedicle of the tumor. After cutting off the polyp the ligature had slipped, and the hemorrhage that had ensued was so severe that it took four hours before he succeeded in checking it.

Dr. A. H. Andrews stated that he would do one of two things in these cases of angioma, either ligate the vessels that enter the mass and then employ negative galvanism or else let the tumor alone.

Dr. Ballenger would use positive galvanism instead of the negative, because what the tumor needs is coagulation and not liquefaction. If he would use galvanism at all, he would use several needles at once, with about twenty-five milliamperes of current for five or ten minutes, repeating applications from time to time, as seemed necessary.

Dr. J. G. Wilson exhibited an anatomic preparation showing dissection of the muscles around the mouth of the esophagus. This preparation showed a small triangular area just beneath the inferior constriction of the pharynx, in which the muscle fibers were entirely absent. Dr. Wilson called attention to the work recently published by Killian on the anatomy of this region, and pointing out the weakness of this particular area as an important etiological factor in the production of esophageal diverticulum.

Dr. J. C. Beck inquired of Dr. Wilson how he would account for the formation of a lateral esophageal diverticulum if the esophageal pouches were the result of the stretching of the weakened area in the middle of the posterior wall as described by Dr. Wilson. Dr. Beck referred to a case of lateral diverticulum of the mouth of the esophagus which he had filled with bismuth for diagnostic purposes.

Dr. Stubbs inquired of Dr. Wilson how long a spasm of the superior constrictures usually lasted. He had seen a case recently in a man of forty-seven years of age, where the spasm persisted for twenty-four hours.

Dr. Kenyon had seen a case several years ago in which the spasm was so severe that the patient was unable to swallow anything, and it was impossible to pass a bougie for over twenty-four hours.

Dr. Wilson (in closing) stated that he did not know what the usual length of time was the spasm persisted. A spasm of moderate severity had been known to last for several days. Severe spasms usually pass more quickly. In the case of lateral diverticulum cited by Dr. Beck, he thinks it very likely that the mouth of the diverticulum was posterior, but that the sac had been pushed to one side on account of the anatomical relations.

A DISCUSSION OF THE PHYSIOLOGY OF THE COCHLEA.

Dr. Geo. E. Shambaugh, in discussing the physiology of the cochlea, called attention to the existence in the labyrinth of three distinct types of end organs; the macula acustica in the vestibule, the crista acustica in the semicircular canals and the organ of Corti in the cochlea. The older physiologists looked upon the labyrinth of the ear as a mechanism solely interested in sound perception, and they distributed this function over these three types of end-organs as follows: Tone perception to the organ of Corti, noise perception to the macula acustica, and the ability to determine the direction from which sound comes to the crista acustica. The physicists have been able to demonstrate that no fundamental difference exists between a tone and a noise, so that the necessity for two types of end-organs in sound perception is uncalled for. It has also been demonstrated by physiological research that the semicircular canals have a function quite distinct from that of hearing. The present view is that all sound perception takes place in the cochlea, whereas the end-organs in the vestibule and in the semicircular canal have to do with the function of equilibrium.

When Helmholtz undertook the study of tone perception, his efforts were directed to the explanation of the most conspicuous phenomena connected with tone perception, that of tone analysis. If a number of tones are sounded at the same time, the complex wave that impinges upon the organ of hearing is analyzed by this organ into its component parts, so that we are able to recognize each of the original tones. This phenomena of tone analysis has an every-day analogy in the principle of physical resonance. If, for example, a number of tones are sounded in an open piano forte, the complex wave that impinges upon the piano strings will be analyzed by these strings, so that the strings in the piano corresponding to each one of the original tones will be set to vibrating. This fact suggested to

Helmholtz that a similar mechanism of physical resonators existed in the cochlea, arranged in such a way that in the perception for the high tones there would be a response in one part of the cochlea tube, and for the low tones in another. Helmholtz then examined the cochlea in order to find, if possible, a structure which would fit this theory. The rods of Corti appeared to him as structures which might take up the function of rod resonators. This idea had to be given up when it was shown that in birds and crocodiles the rods were wanting. Helmholtz then selected the radiating fibers of the membrant basilaris as the resonators. These fibers, longer at the apex of the cochlea, should respond to the low pitched tones, while those at the base of the cochlea, being shorter, should respond to the high pitched tones, and in vibrating bring about a stimulation of the superimposed hair cells. Various modifications of the theory of tone perception that have been suggested since the time of Helmholtz all retain the idea that the active structure in bringing about a stimulation of the hair cells is the membrana basilaris.

Dr. Shambaugh's work on the problem of the physiology of the cochlea was undertaken from quite a different viewpoint. He became primarily interested in the embryology and in the histology of the end-organs found in the labyrinth. A study of the internal ear in this way leads to conclusions regarding the function of the various structures in the organ of Corti which are different from those reached by Helmholtz.

From a study of the development of the labyrinth it is found that the three types of end-organs which are located in the internal ear all have a common origin in the primitive otic vesicle. A careful study of the histologic details of these three end-organs shows us that fundamentally they have exactly the same structure, that they are made up of peculiarly specialized epithelial cells, which have hair-like processes, and that above these hair cells there is suspended in each instance a peculiar structure derived from the epithelium. This similarity suggests very strongly that they are all three derived from a common primitive end-organ. This overhanging epithelial structure in the vestibule is the otolith membrane. In the semicircular canals it is the cupola, and in the cochlea it is the membrana tectoria. The stimulation of the hair cells in each instance is brought about by an interaction between the hairs of the hair cells and this overhanging epithelial structure. Now it is clear that this intersection is brought about both in the vestibule and in the semicircular canals by a movement in the otolith membrane and the cupola respectively. It is therefore logical to assume that in the organ of Corti the interaction between the hair cells and the membrana tectoria is accomplished rather by the movements of the membrana tectoria than of the membrana basilaris.

If we subject the membrana basilaris to a critical study we will find a number of conditions which make it impossible for this structure to perform the function of resonator as embodied in the Helmholtz theory. In the first place, this structure disappears as a vibrating mechanism at some distance from the beginning of the basal coil. In the second place, if this membrane consisted of a series of string resonators, we would expect to find that as the fibers become shorter they would also become thinner. Just the opposite is the case. Invariably the shorter the fibers become, the thicker they become. In the third place, there is attached to the under surface of the membrana basilaris a blood vessel which must dilate or contract, depending upon the blood pressure. This would interfere fundamentally with the principle of the Helmholtz theory, which requires that each radiating fiber must always vibrate for the same tone. The logical conclusion from these facts seems to be that the membrana tectoria, and not the membrana basilaris, is the active agent in stimulating the hairs of the hair cells.

Just how the membrana tectoria responds to the impulses of the various tones passing through the endolymph is not easy to determine. Any conclusion as to its probable action must, of course, be more or less speculative. Of the possible modes of action, three suggest themselves. One is that for each tone the whole membrane is thrown into action. The second is that the high tones stimulate but a small part of the tectorial membrane at the beginning of the basal coil, and that each tone lower in the scale stimulates a larger and larger part of the membrane.

The third is that the membrana tectoria responds in its several parts to tones of different pitch, in the basal coil for the high pitched tones, and in the upper coils for the lower tones. In order to determine which hypothesis is the probable one, we must keep in mind the phenomena that must be accounted for. There are, in the first place, the phenomena of tone analysis; in the second place, the so-called secondary phenomena of tone perception, and finally the occurrence of tone islands. The phenomena of tone analysis can possibly be accounted for by any of the three hypotheses. The secondary phenomena of tone perception are accounted for most plausibly if we assume the third mode of action. Finally, the phenomena of tone islands, or of defects in the middle of the tone scale, can, it seems, be accounted for plausibly only on the assumption that the membrana tectoria responds in its several parts to tones of different pitch, thus acting in the manner of a physical resonator. The final conclusions are that the membrana tectoria is the agent which, by responding to the various tone impulses passing through the endolymph, stimulates the hair cells of the organ of Corti, and brings about tone perception. The manner in which the membrana tectoria responds to the various tones appears most probably to be by separate segments responding to different tones, the high pitched tones in the basal coil, the lower tones in the upper coils.

Dr. Holinger inquired whether the anatomical facts relating to the membrana basilaris which Dr. Shambaugh cited, were those found on embryonic specimens, or from specimens taken from normal-hearing human adults. He stated that the point has been made that the mechanism of hearing is not the same in man as in animals. If this is true, conclusions based on anatomical data derived from the lower animals could not safely be applied to the function of hearing in man. He thinks that the tectoria membrane is a soft structure that is more suited to dampen the sounds than to intensify them, somewhat like the soft pedal on the piano. It was not clear to him how the same hair cells in the organ of Corti, even when grouped differently for different tones, could result in tone analysis, as Dr. Shambaugh had pointed out.

Dr. J. G. Wilson emphasized the fact that Dr. Shambaugh had arrived at his conclusions regarding the physiology of the cochlea by beginning with a study of the embryology of this organ, and continuing with a painstaking study of the adult anatomy, and that finally his work led up to a discussion of the probable physiological function of the structures. This method of procedure is now recognized to be the proper scientific method for working out any new question in physiology. Dr. Shambaugh has been an enthusiastic worker on the labyrinth of the ear, and Dr. Wilson thought this enthusiasm might perhaps be urged by some as objections to his results. Dr. Wilson stated he still was a believer in the telephone theory, which in the discussion Dr. Shambaugh referred to as a discarded theory. He thinks the telephone theory as we now see it, as well as the resonator theory of Helmholtz, as understood to-day, is quite different from either of these theories when they were first brought out. He said that Dr. Waller, of London, was a prominent exponent of the telephone theory to-day. This theory refers the ultimate analysis to the brain.

Dr. Shambaugh's anatomic points have been substantiated by other workers. There are still some questions where difference of opinion exists. If he understood Dr. Shambaugh correctly, the hair cells in the three types of end-organs found in the labyrinth are peculiar in the histology of these special sense end-organs. This may not be strictly true, since there are other end-organs with hair-like filaments. He does not believe that the ear is capable of recognizing absolute pitch.

Dr. H. Gradle considers the work by Dr. Shambaugh as in a measure a corroboration of the fundamental hypothesis of the Helmholtz theory of tone analysis. The workers on the cochlea are to-day in possession of more detailed anatomic knowledge than was Helmholtz. On the other hand, Helmholtz was a master in physics, and it was this knowledge that made it possible for him to construct his work on the hypothesis of tone analysis. He thinks the fact that the membrana tectoria is not a homogeneous structure, but a very complex one, is an evidence that it may be possible for its different units to analyze the impulses from the various tones which pass through it into the hair cells. Any theory to-day which

refers tone analysis to the labyrinth must necessarily also take into consideration the well known pathologic phenomena. One is that the labyrinth may be thrown out of tune by certain diseased conditions producing the well known condition of displacousis. This condition seems to be produced sometimes in cases where there is evidence only of a slight middle ear catarrh.

Dr. Andrews thought that there was a somewhat similar condition of things in the eye, although the media through which impressions were carried is different. He thinks it is possible to conceive of sound waves passing through the fluids of the labyrinth affecting the hair cells directly without the intervention of either a membrana basilaris or a membrana tectoria.

Dr. Shambaugh (in closing):—The anatomical material from which the data regarding the basilar membrane had been derived was the new-born pig, which represents the adult condition since the labyrinth, like the other special sense organs, is fully matured some time before birth. He does not believe there is any reason to doubt but that the fundamental facts regarding the function of hearing is the same for the lower animals as for man. Where structures are so alike throughout there is no reason to believe that a different mode of function exists in one species from that in others.

Dr. Holinger's fear is hardly warranted that a confusion of tones must arise where the same hair cells are stimulated for different tones only in different groups. From the standpoint of the psychologist, all that is necessary to account for the phenomena of tone analysis is that there should be a different group complex of hair cells stimulated for each particular tone.

Dr. Wilson's suggestion that an enthusiastic worker is liable to draw false conclusions, is hardly to the point. Enthusiasm is always necessary to accomplish any painstaking work. The question is rather whether one is able to recognize anatomical facts as they exist, and whether one is capable of drawing logical conclusions from established facts.

The evening is already so late that it would not be feasible to take up the discussion of any further points at this time.

Meeting, March 9, 1909.

The Chicago Laryngological and Otological Society met March 9, 1909, with the president, Henry Gradle, in the chair.

Dr. Harry Kahn presented a case of foreign body in the maxillary sinus. A man, over fifty years of age, luetic for thirty years, nine years ago developed pains in the legs and other tabetic symptoms. Seven years ago vision began to fail and a diagnosis of tabes was made. Vision rapidly became worse, and the man is now totally blind. About four years ago he placed himself under the Cooper treatment and was injected many times. He became salivated, and lost most of his teeth, except the first and second upper molars on the left side. Then he had a plate made, but as his gums shrank considerably the plate would not remain in place. He then devised the expedient of sticking a toothpick beside the first molar to act as a wedge. This tooth loosened so much that extraction was resorted to. The socket did not heal, and on examination pus was found exuding. Dr. Kahn punctured the maxillary sinus, and found it to contain a considerable amount of pus. At the second puncture he discovered an anesthetic area on the gums. Finally, the sinus was curetted and a piece of toothpick, about three-fourths of an inch in length, was removed. Evidently this had been the cause of the trouble, because recovery followed immediately.

Dr. William L. Bailenger, in discussion, stated that some years ago he had seen a case of suppuration of the antrum which had previously been treated by a local specialist, who introduced a drainage tube into the antrum. After a time the tube disappeared and it was presumed to be lost. The suppuration continued, however, with increasing severity. Some months later the patient had a violent fit of sneezing, during which the drainage tube was ejected from the nose. The suppuration then abated, and a cure was greatly effected.

Dr. D'Orsay Hecht first saw the patient in January, 1908, and said it required not a very thorough examination to pronounce the case one of frank tabes, presenting, however, unusually interesting features, two of which he desired to particularly emphasize. It was to be observed that the patient walked well, while, on the other hand, it was to be noted that he was blind. Curiously enough, he walked well because of the blindness. Dr. Hecht said that the blindness developed early and belonged to that category of tabes cases known to neurologists and ophthalmologists as the amaurotic type, in which the motor symptoms were known to remain in check; held in abeyance. So constantly true was this clinical fact, that Dr. Hecht could conscientiously follow a neurologic dictum of years' standing namely, to give patients with rapidly failing vision the assurance that they need have little or no concern about an impairment in their gait. The patients who could not see would walk well; the patients who could not walk well need have no fear of losing their eyesight.

The second feature, Dr. Hecht said, had to do with sensation. He stated that the sensory disturbances in tabes were many in kind and varied in location, the analgesias affecting chiefly the lower extremities, whereas the anesthetics appeared more often in a zonal distribution on the trunk, corresponding to cord segmental distribution. He would add that testicular and ulnar analgesia, together with delayed sensory impressions, were also present in the patient presented, but only in a slight degree. He desired to call attention to one of the rarer forms of sensory involvement affecting the fifth cranial nerve, which, as it occurred in this case, proved most interesting. The trigeminus was anesthetic and hypalgesic both in its ophthalmic and superior maxillary divisions, in support of which Dr. Hecht passed for inspection several sensory charts with outlines of sensory disturbance in the extent mentioned. It was of further interest to note, in passing, that the patient was unable to recognize the position of a bolus of food in the mouth, readily explained by the fact that the fifth nerve supplies, in addition to the entire integument of the face, the mucous membrane of the mouth, the nose and antrum of Highmore. The insensitiveness to pain enabled the puncture and instrumentation of the antrum without the least discomfort to the patient. Although not demonstrable now, there had at one time in the earlier course of the disease been present an hallucination of smell, in other words, a parosmia.

Dr. Henry Gradle showed specimens of a tonsil injected with bismuth paste, and then serially sectioned to demonstrate a communication of the various crypts of the tonsil with one another.

Dr. Joseph C. Beck demonstrated the method of injection of the tonsil with bismuth paste, a method he has employed in several cases of acute inflammations. Although the patients have returned subsequently, with attacks of tonsillitis, they were not so severe, either locally or constitutionally.

Dr. J. Hollinger reported the case of a man who became ill three months ago, with symptoms of vomiting, dizziness and staggering gait. The patient's condition has been apparently improved about 75 per cent. by the inflation of the middle ear with air. Mercury and potassium iodid are also being administered, although there are no manifestations of lues and the patient denies infection. The general diagnosis is lues of the brain and spinal cord. He has analgesic zones on the legs and face. The tuning-fork tests show simple nerve deafness. He hears whispered voice in both ears about five meters. The Rinné test is normal. The Weber-Schwabach for small α is positive and for capital A is negative. The upper tone limits are lower than normal. He hears sixteen vibrations quite well in both ears. Injecting a cold solution in the ear produces a normal reaction. The nystagmus is especially bad when looking toward the side not injected. The reflexes are diminished.

Dr. George E. Shambaugh, in discussion, stated that although one frequently hears of cases of aural vertigo caused by middle ear disease, a good explanation has never been made as to how a continued increase in labyrinthine pressure could cause the vertigo. If this patient is suffering from a neuritis of the acoustic nerve the symptoms could be explained very readily. If the ear trouble has come

on only several months ago, and is of the internal ear type, as the tests show, it is probably due to a neuritis of the acoustic nerve, and the continuation of the irritation of the vestibular portion of the nerve is the cause of the vertigo.

Dr. D'Orsay Hecht said that since neurologic comment had been invited by Dr. Holinger he felt disposed to differ in regard to the inflation test just applied to show an improvement in the patient's ataxia. He thought no inference should be drawn from this demonstration. As concerned the diagnosis of cerebrospinal lues in this case, he could not reconcile himself to such a conclusion, based upon the symptoms referred to. Dr. Holinger had not remarked about the pupillary condition, nor those of the reflexes, and he did not think that a diagnosis was tenable when based upon "poor" reflexes, and such subjective symptoms as headache, vomiting, and a questionable degree of static ataxia, as shown by the Romberg sign. He thought that these symptoms, vague as they were, might indicate any one of a number of cerebrospinal, cerebral or meningeal conditions. He added that he had frequently noted marked improvement in vertigo of the aural type as the result of significance in the diagnosis of Ménière's disease. He was not prepared to venture a neurologic diagnosis, as he had not examined the patient.

Dr. D'Orsay Hecht said, in answer to Dr. Shambaugh's inquiry concerning the physiological explanation of the retardation of the ataxia in the presence of amaurosis, that he had nothing adequately scientific to offer, but it was a well known fact that visual concentration upon motor effort increased motor incoordination. He added that a woman with tabes will never present as much ataxia of gait as will a man, for the reason that she can not see herself walk because of the intervening drapery in the form of her skirt.

In the Fränkel exercise treatment of the ataxia of tabes an attempt at re-education is made by exacting precise maneuvers at a better coordination without the aid of the visual apparatus. This is as much as Dr. Hecht could venture to explain.

Dr. Holinger stated that this was the first day that the man had retained three meals. The day that an inflation is made he does not vomit at all, but the next day the reaction is pronounced. For about eight days he has been getting hypodermic injections of mercury and potassium iodid, and all of the symptoms have improved considerably. The vestibular apparatus certainly is not paralyzed, because there exists a pronounced nystagmus.

Dr. Joseph C. Beck presented a lady whose cervical glands were removed some time ago, and who now has a fistula. There is a condition in the mouth that is peculiar. A mass occupies the site of the posterior pillar of the fauces, somewhat simulating a tonsil behind the posterior pillar, and the space between anterior and posterior pillars is obliterated. The question is whether this mass to which the fistula leads is tuberculous in nature.

Dr. O. J. Stein suggested that this mass might be a cold tuberculous abscess, particularly inasmuch as it had existed for about three months.

Dr. Robert H. Good read a paper entitled "Early Immunization; The Essential Function of the Tonsil."* He discussed the hypothesis that the tonsillar crypts acted as test tubes for the reception and cultivation of bacteria of the different diseases which affect the human organism, and that a gradual process of immunization results, his conclusions being that during the first few years of life is the time when the individual is in greatest need of protection against the various infectious diseases, and it is during this period that the tonsil performs its chief physiological function. It is only occasionally in later life that the tonsil has this function to perform. He concludes that in children under two or three years of age it is unwise to remove the tonsil completely. It is only the markedly diseased tonsil that should be enucleated. He further concludes that when the tonsil once becomes diseased its function is so altered that it is possible for it to become a portal for systemic infection.

Dr. C. M. Robertson questioned the statement that the tonsil has a function. He is inclined to believe that it has no function whatsoever, certainly not at birth,

* For text of paper see page 186, August issue.

when it is completely covered over by the plica tonsillaris. Shortly after the second year this fold disappears, and the function of the tonsil, if such exists, may commence. The tonsil develops up to the fifth or sixth year, and then rapidly atrophies, so that at the age of puberty it has practically disappeared. Therefore, if the tonsil has any function at all, it is between the ages of two and ten years; after that it is a pathologic organ.

As for the statements made regarding the glands and ducts, that is not new, although the opening of the duct into the crypt is a new discovery, if really true. The duct is situated down at the bottom of the crypt in the capsule and passes up into the trabeculæ. The mucus expelled from the crypt is slight in quantity, just sufficient to keep the surfaces of the crypt lubricated.

As to the phagocytosis: The lymphocyte coming from the tonsil, not going into it, is not a phagocyte, and, besides, the pouring out of the opsonins is necessary before the lymphocytes can become phagocytic. The location of the tonsil is such that in respiration it is closed off from the respiratory tract. The posterior pillar of the fauces is a broad muscle, five or six times as large as the palatoglossus muscle, so that the tonsil is pressed up against the tongue, and excluded from the respiratory tract. Dr. Robertson considers Fox's theories all wrong; at any rate, they have never been proved to be correct. As a digestive organ, the tonsil has no function at all. That has been shown repeatedly by experiments; nor has the tonsil any bactericidal action.

As regards the formation of antibodies, such an action has been suggested but has not been proved. Vaccination in tonsillitis would prove that quite readily.

Dr. Otto T. Freer:—Dr. Good's discourse leaves the impression that he has reasoned out for himself a theory of the function of the tonsils based upon a literary review and deductions therefrom, rather than upon the clinical and laboratory research which his assertions demand as a backing, if they are to be taken seriously. His paper consists mainly of unproven and to a large extent unprovable hypotheses, and is not, it seems to me, a record of demonstrated facts.

For example, the mucous glands in the fibrous envelope of the tonsil, called by Dr. Good paratonsillar glands, are declared by him to be the seat of origin of peritonsillar abscess. To make this more than mere dogmatic assertion, Dr. Good should have furnished microscopic specimens showing in these glands the beginnings of a peritonsillar abscess, which would appear as dense round-celled inflammatory infiltration associated with necrosis of the glandular epithelium.

In another part of his paper Dr. Good refers to the crypts of the healthy tonsil as the analogues of test tubes containing cultures of bacteria, and makes the statement that bacterial agglomeration in the crypts has an immunizing effect on the body in the course of time. Had he shown histologically such massed gatherings of micro-organisms in the crypts, he would have at least had some support for his hypothesis. As it is, his description is contradicted by every day experience, which shows the crypts of healthy parts of excised tonsils to be empty of anything but clear transparent mucus, which has no resemblance to the opaque bacterial cultures familiar to all the test tubes. To be sure, cultures of bacteria contained in fibrinous exudate clinging to the walls of the crypts are seen in follicular tonsillitis. This is, however, an inflammatory and not a physiological condition.

Dr. Harry Kahn said that the essential facts of Dr. Good's paper were read by Dr. Orendorf in Indiana in 1907, and in that paper he positively states that his conclusions were based on the examination of tonsils excised by Dr. Good. Therefore, it is impossible to arrive at an estimation of the true value of the theories advanced by Dr. Good with regard to the function of these tonsils. He considered it an assumption on Dr. Good's part to formulate a theory based on mere supposition and not on experimental facts. The entire paper is a theory without any foundation.

Dr. Good, in closing, said it was unreasonable to suppose that any organ having a lymph current draining into it, and having the function of throwing off leucocytes into the crypts, having pockets and mucus draining into these pockets, was without function. Instead of there being a small amount of mucus in these

crypts, there is a considerable amount. And that the plica tonsillaris, or triangularis, covers up the entire tonsil at birth is not correct. He dissected a tonsil a month ago, in which the upper crypts were wide open and easily admitted a probe. The triangular plica acts as a pocket to catch bacteria and pass them into the crypts. The presence of bacteria in the crypts was demonstrated by Dr. Jonathan Wright. As to Dr. Kahn's statement that the immunizing theory had been derived from the examination of diseased tonsils, this was not true. Dr. Orendorf examined tonsils that he (Good) had removed, but he did not attempt to build any theory on these examinations.

Dr. Arthur R. Elliott discussed some of the questions in connection with the secondary systemic toxic effects from tonsillar disease. In this he dealt chiefly with such questions as anemia, resulting from hypertrophied tonsils and adenoids, rheumatic conditions occasioned not only by acute follicular tonsillitis, but by more or less latent chronic tonsillar infection, etc.

Dr. O. J. Stein thought that Dr. Elliott's extended observations proved that almost every tissue of the body is capable of being affected by tonsillar disease; therefore, it might be said that all tonsils ought to be removed. These observations have been confirmed by many clinicians. He referred to a case of acute tonsillar disease occurring in a woman 35 years of age, brought on by exposure, which terminated twenty-four hours later in a swelling of the right wrist. This was followed by swelling of the elbow, and then of the shoulder joint. On the second day the knee joints and both wrists were swollen. There was scarcely any rise of temperature, no redness, but the swelling was so marked that the patient was incapacitated. There was tenderness, but no pain, except on motion. It was what might be called a case of polyarticular synovitis. It was questioned whether the tonsillar disease had anything to do with the joint affections. After removal of the tonsils the trouble disappeared entirely. Cases that are likely to be overlooked are those in which there is a slight cough and a rise of temperature simulating tuberculosis. Careful examinations must be made in order to discover suppurating tracts in or about the tonsils. Unless repeated examinations are made in these cases the findings will be negative. Erythema following tonsillar disease is also quite common.

Dr. Freer said that Dr. Elliott has permitted himself a statement of importance which was founded on insufficient evidence. I refer to his assertion that children are anemic because of tonsillar hypertrophy or other tonsillar disease, this anemia being removed by ablation of the tonsil. To be of scientific value, such a statement should be backed by blood counts and quantitative hemoglobin tests, and should not be made without a reference to them. From my clinical observation I regard the doctrine, that children with tonsillar hypertrophy are in consequence anemic, as a text-book tradition rather than a proven fact, for these children have seemed to me to have as good a color as those without tonsillar hypertrophy, nor do they present any of the other clinical signs of anemia. To prove or disprove this doctrine, however, exact blood tests are needed both before and after the operation, and I suggest that such a research would prove a most valuable one for some member of this society.

It is unfortunate that medical literature is inflated by so much that is unsupported by clinical and experimental evidence and is mere plausible theory, announced as demonstrated truth. It requires self-denial for the medical writer to mercilessly elide from his writings the many things which he feels to be true, but has not proven to be so, but the narrow path of exact evidence is the only one to follow.

Dr. Arthur R. Elliott, in closing, commended the scientific spirit displayed by Dr. Freer in requiring proof for every statement made, but time prevented a full discussion of the cases he (Elliott) had presented, although all of his statements were the result of a careful examination in each and every instance. He merely refrained from presenting a mass of detail that would consume more time than was at his disposal.

Dr. Edwin Pynchon read a paper entitled "Sheet of Directions Given the Patient After a Tonsil Operation Including the Treatment of Postoperative Hemor-

rhage,"* in which he discussed in detail all the methods that are ordinarily used for checking postoperative tonsillar hemorrhage.

Dr. Freer:—Dr. Pynchon's paper is a full and therefore valuable compilation of everything that might be tried to check tonsillar hemorrhage. I can think of nothing that Dr. Pynchon has omitted.

I do not agree with him in regard to the frequent gargling and syringing he recommends as after-treatment. I think that such disturbance of the wound, and especially the retching it provokes, would be apt to bring on bleeding, and at a time when the patient is far from help. The mode of operation which I employ, knife incision, causes so little reaction that I have not found after-treatment of any kind needed.

The general measures suggested by Dr. Pynchon for the checking of bleeding seem of especial value, for the most important thing to do in the case of obstinate tonsillar hemorrhage is to lower blood pressure, rather than to fuss with the wound and so displace clots which may be forming in the outlets of the vessels. Therefore, the nauseants, ligation of extremities, upright position and other preventive measures advocated by Dr. Pynchon, and by me in a previous discussion before this society, have my approval.

In regard to the use of tonsil clamps, they are most valuable aids, but apt to be ineffective until the blood pressure is lowered by the bleeding or in other ways.

Dr. Edwin Pynchon, in closing, said that there could be no doubt about the improvement in health after the removal of tonsils. He had yet to see a case where this was not true. He suggested that if Dr. Freer would remove tonsils in their entirety he would get the same results. If he removed tonsils by his (Pynchon's) method, the operation would not only be a bloodless one, but no clots would form, and therefore the gargles and the syringing would not wash away any clots and start hemorrhage afresh. On the contrary, he finds it wise to use gargles with as great frequency as the patient can be persuaded to use them.

Dr. Freer (Reply to closing remarks of Dr. Pynchon):—Dr. Pynchon states that if I removed tonsils completely I would see evidences of disappearance of anemia in children after the operation. I think he misunderstood me, for I said that in my experience there was commonly no physical evidences of anemia in the children I had operated upon, either before or after the operation.

Dr. Pynchon, without personal knowledge of my work, insinuates that I do not completely remove tonsils. I think that those who read my recent articles on tonsillar excision in the *Journal of the American Medical Association* will be convinced that I leave no vestige of diseased tonsils behind after my tonsillectomies.

Dr. Pynchon praises his method of tonsillar ablation, which is known to be cautery dissection, as offering a bloodless operative field. He does not, however, mention the violent and serious postoperative bleedings which occur at the most unwelcome times, days after his operation, in the form of secondary hemorrhage when the cautery sloughs separate, for a seared wound is a treacherous one in regard to bleeding, the vessels when opening in tissues inflamed after a burn, failing to close until the patient is nearly exsanguinated. I have personally treated two of Dr. Pynchon's for him who had most serious secondary tonsillar hemorrhages. In distinction to this, after my knife excision in adults, since I use adrenalin submucously, I have been able to operate in a bloodless field in most cases, and the adrenalin anemia lasts long enough for the vessels to close, so that postoperative hemorrhage is rare and never severe in my experience. In children I have never seen delayed bleeding from tonsils.

Regular Meeting, April 13, 1909.

A regular meeting was held April 13, 1909, with the president, Dr. Henry Gradle, in the chair. Dr. J. C. Beck presented a man who had been severely mutilated in the Kishineff massacre six years ago. The ears presented the worst deformity, and Dr. Beck proposed to perform a cosmetic operation, showing the

* For text of paper see page 179, August number.

patient at this time merely for purposes of comparison. Papers were presented as follows: "Suppuration of Attic of the Middle Ear," by H. Gradle; "The Telephone Theory," by J. G. Wilson, and "Why a Peripheral Tone Analysis Is Necessary to Explain the Phenomena of Tone Perception," by George S. Shambaugh.

SUPPURATION OF THE ATTIC OF THE MIDDLE EAR WITH AN UNUSUAL FORM OF HERNIA OF THE DRUMHEAD AND TRANSIENT LABYRINTHINE INVOLVEMENT.

DR. H. GRADLE.

The following observation presented such unusual features that its report seems to me instructive: Mr. J. C., a healthy man, aged 38 years, had an acute attack four weeks previously, supposed to have been influenza. A left sided earache of one night was followed the next day by discharge, thick from the beginning, which had not diminished in amount although never very copious. There was some pain irregularly which had again increased within the last three days. A colleague who had treated him now proposed mastoid operation. The patient seemed otherwise in good health and with normal temperature. There was variable pain in the ear itself, none behind it, with slight tenderness over the lower part of the mastoid only and scant muco-purulent discharge. The drumhead was hidden by a tumor springing from above and in front and leaving only a narrow chink downward and backward between the meatus wall. The tumor was apparently covered with epithelium and felt solid and slightly mobile to the probe. Hearing fair for whisper and watch heard through the air. In order to prepare for snaring cocain and adrenalin were applied and then injected with a fine needle into the tumor. The excessive tenderness on using the needle led me to defer the use of the snare. After the cocain injection had reduced the sensitiveness to touch I incised the tumor and found it hollow with walls perhaps 3 mm. thick. On catheterizing, the air escaped through the incision without expelling any more fluid. The tumor was evidently a pouch of very much thickened tympanic membrane. Under gauze drainage and instillations of carbolated glycerin the protruding pouch shrank rapidly, and as it receded it became more certain that it was the upper portion of the drumhead. Just before its final disappearance it seemed confined to the flaccid portion, but from its size it did not seem possible to be made up merely of Shrapnell's membrane. As it receded it gradually uncovered the balance of the drumhead, which did not seem abnormal except for its congestion. For a week the pain and discharge diminished rapidly and the mastoid tenderness had practically disappeared. As the pain increased again and the tumor, now reduced to about one-half in size, began to swell again, I made another larger incision into it. As the discharge had shown staphylococci I also injected subcutaneously staphylococcus vaccine. From this time on he had no more pain and the diminution of the discharge and the shrinkage of the tumor proceeded at a constant rate.

Nevertheless the man felt sick the next day and the following night (the tenth day of observation) there occurred labyrinthine involvement. He awoke with involuntary discharge of urine, extreme dizziness and vomiting. The next day I found normal temperature, tongue slightly coated and extreme dizziness from the slightest exertion, ceasing only when absolutely quiet on his back. There was no spontaneous nystagmus. Nothing new was learned on inspecting the ear but the hearing was much reduced. Watch not heard and very loud whisper uncertain close to the ear, but the tuning fork lateralized on the diseased side. The dizziness diminished steadily so that five days later he was able to come to the office, though still dizzy on exertion. The ear showed objectively improvement in every way and the hearing for the voice had also improved. One week after the labyrinthine attack he was able to walk alone though still slightly dizzy. The discharge had ceased. Catheterization showed an intact drumhead, and as the catheter relieved him subjectively it was continued for treatment. The pouch-like protrusion was now limited to the upper posterior part of the drumhead. Steady recovery continued, the dizziness was soon over entirely and within one

month after the onset of the labyrinthine disease the ear was subjectively and objectively normal with practically perfect hearing.

Comments.—The history of four weeks carache without mastoid disease characterizes the disease as inflammation of the attic with scarcely any involvement of the tympanic cavity proper. This is borne out by the history of scant mucopurulent discharge from the beginning without diminution. A smear showed scant staphylococci. The diagnosis of the pedunculated tumor protruding beyond the drumhead and occupying the width of the meatus was at first not clear. The mass was pale red, of somewhat irregular surface, but glistening as if covered with epithelium. The latter appearance made it differ from a polypus. But being mobile to the probe I intended to snare it. Its great sensitiveness, even after the use of cocaine, induced me to inject cocaine into its base with a hypodermic needle, the slipping in of which suggested the possibility of a pouch of the drumhead. Incision showed it to be a bag with walls about 3 mm. thick, and the subsequent course confirmed the diagnosis of a pouch of enormously thickened Shrapnell's membrane which finally returned to the normal. It was not quite clear whether the hernia was limited to Shrapnell's membrane or extended into the drumhead proper.

Inflammatory pouches are little referred to in literature except by Politzer, who first described them in 1862. They are scarcely mentioned in most textbooks except by Walb.¹ As described by these authors (and pictured in Politzer's Atlas "*Beleuchtungsbilder*, etc.," and also in Politzer and Bruehls' Atlas of Otolgy) in the form of small or pedunculated protrusions of Shrapnell's membrane with distinctly purulent contents they are easily recognized and I have met with them in a few instances. But a pouch of the exaggerated dimensions seen in this patient I have never known before from personal experience or literature. The reason why this condition, which had persisted for four weeks, improved so rapidly under my treatment was undoubtedly due to better drainage. Experience in other cases leads me to believe that the subsequently uniform improvement was favored by the staphylococcus vaccination.

The second unusual incident was the involvement of the labyrinth. The sudden occurrence of intense dizziness with initial vomiting and nausea indicated beyond a doubt a disturbance in the semi-circular canals or at least the vestibule. The dizziness was so extreme that the patient scarcely dared to change his position in bed during the first day. An unusual symptom was the involuntary emptying of the bladder at the onset. Yet, notwithstanding their great severity, the labyrinthine symptoms subsided rapidly and on the third day the patient was able to come to the office with assistance. After the lapse of a week he was only dizzy on sudden exertion. A similar clinical condition has been described by Alexander² as serous labyrinthitis. He observed it in four patients following in each within twenty-four hours after a radical mastoid operation. As in my case the symptoms arose suddenly and disappeared almost completely within a week. Alexander speaks of spontaneous nystagmus present. This was not observed in my patient. Alexander found the hearing temporarily impaired in one case, not at all in another, while two others had practically been deaf previously. In my patient the hearing, which had been but moderately reduced by the disease of the attic, was very decidedly impaired by the labyrinthine complication. My belief that this was due to involvement of the cochlea is neither supported nor overthrown by the tuning fork test. For, in view of the previous interference with sound conduction, one would still expect the fork to be lateralized on the diseased side as long as the cochlear function was only impaired but not abolished. It must be noted, however, that there were no subjective noises. Alexander considers the labyrinthine lesion as a serous effusion which seems to me probable in view of the sudden onset and rapid gradual decline. It is not clear what caused the complication in the present case. The patient's subjective and objective improvement came to a standstill two days before the dizziness set in. He began to feel

1. Walb: Otitis in Schwartz's Hdb. der Ohrenheilkunde, 1893.

2. Alexander: Arch. f. Ohrenheilkunde, lxxv, 1.

sick and lost appetite but without febrile tendency. The day before the labyrinthine complication I reopened the incision in the protruded membrane. The improved drainage now permitted again a steady uninterrupted recovery from the attic disease, but perhaps it came too late to prevent the labyrinthine effusion.

DISCUSSION.

Dr. George E. Shambaugh saw the patient and said that one of the interesting features was the protrusion of Shrapnell's membrane. The confinement of the suppuration in the attic is readily accounted for by the fan-shaped arrangement of the ligaments about the neck of the malleus. An examination of these ligaments with the reduplication of mucous membrane extending from the ligaments and the ossicles to the surrounding walls sometimes shows the attic or recessus epitympanicus shut off from the tympanic cavity proper, with the exception of a small opening, which in the case of inflammation could be readily swollen shut. The labyrinthine involvement in this case is of special interest. The condition was evidently not an extension of suppuration into the chambers of the inner ear, such as sometimes occurs in suppurative otitis media. An involvement of the inner ear other than by an invasion of pus is not so uncommon in acute suppurative otitis media. In these cases the trouble is usually limited to the cochlea, and is manifested by a more or less extensive defect for the higher notes of the Galton whistle. In many of these cases this defect in hearing disappears completely, while in others it remains permanent. Since cases of this kind rarely come to autopsy, it will be difficult to determine positively what the pathologic changes are in the labyrinth. Several possible conditions suggest themselves. One is that there is a serous exudate into the structure of the inner ear, not necessarily an increase, as is sometimes supposed, of the fluids in the labyrinthine chambers. Another is that a hyperemia is occasioned, involving the lower end of the basal coil, thus producing a defect for the highest tones. It would also seem probable that an inflammatory round-celled infiltration could occur in the structure of the cochlea, producing the disturbance in function.

Dr. Harry Kahn cited the case of a woman, aged 56 years, who, three weeks after an attack of influenza, developed an otitis media on the left side. A paracentesis was done, and on the next day there developed a slight edema of the mastoid tip. This became worse, so that a second paracentesis had to be done. On the fourth day she developed labyrinthine symptoms, extreme nausea and vomiting, with dizziness, and had nystagmus that was very prominent at first toward the affected ear for about twelve hours, with a sensation as of falling forward. After about twenty-four hours the nystagmus came on when she looked toward the opposite side, with dizziness and vomiting, but becoming gradually less as she lay on the right side. These symptoms lasted four days, and then disappeared. It is now three weeks since these symptoms developed, but whenever she makes the least movement there is dizziness and nystagmus. During the presence of the initial symptoms hearing was reduced; there was a short positive Rinné; the Edelmunn-Galton whistle was reduced to $5\frac{1}{2}$. This continued for two weeks, when she gradually became better, and now she hears well. Dr. Pierce, who saw this case, thought that these cases developed usually in older people, and that there was some connection between the development of the labyrinthine symptoms and middle life or old age, when arteriosclerosis or some other change sets in.

Dr. J. Holinger:—About a year ago I presented before this society a girl of 18 who had all the symptoms described by the Doctor, namely, deafness, nausea, dizziness, etc.; in one word, she had a labyrinthitis in connection with an acute otitis media: a panotitis. Of course, she had no arteriosclerosis, so that the labyrinthine complication probably has nothing to do with age nor with arteriosclerosis, but is very likely due to a defect in the wall of the labyrinth. In the case of Dr. Gradle, why should we not consider the possibility of a closed-up Prussak's space? I do not think that it would be too far-fetched to think that the fluid which gathered there in connection with an acute otitis might exert pressure against the body of the anvil, which, transmitted through its long process

to the stirrup, might produce labyrinth symptoms. A second possibility is that of an acute serous labyrinthitis.

Dr. A. H. Andrews has seen two cases of circumscribed bulging of the membrana tympani, one being in the membrana tensa and the other in Shrapnell's membrane. They were caused by acute otitis media with serous effusion. Neither perforated, and after using phenol-glycerin for its osmotic effects, resolution occurred. After the fluid in the middle ear disappeared the bulging portion of the membrana tensa remained flaccid, so that by varying the air pressure with Seigel's otoscope this portion of the membrane could be made to move inward and outward from the general line of the membrane. The ear was examined on several successive days, and the membrane was seen to gradually regain its normal tone. He does not remember the hearing records, as the patients were seen several years ago. He thinks there is no question but that pressure in the middle ear may cause circumscribed bulging of the membrane, and that this may account for Dr. Gradle's case, but it could not account for the extreme thickness of the sac wall.

PHYSIOLOGY OF THE COCHLEA.

Professor A. J. Carlson said that doubtless many invertebrates have sound perception, although not possessed of a structure strictly comparable to the ear of vertebrates. Insects have auditory hairs and membranes. The evolution in the ear of vertebrates occurs only in the cochlea, not in the semicircular canals, sacculus or utriculus. Fishes, however, hear without a cochlea, but from the fishes upward the cochlea is present, and it shows practically the same structure throughout. The elements lacking in some groups are not essential for sound perception. The rods of Corti are lacking in some animals, the number of hair cells are variable and the tectorial membrane appears to vary in structure. The greatest striking difference is in the length of the cochlea, not in histologic details. It is shortest in frogs, while in human species it reaches its highest development. The cochlea is the organ for sound perception, although the sacculus and utriculus cannot be excluded. The theories developed to explain the mechanism of the cochlea fall into two groups, those of central and those of peripheral analysis. Peripheral theories depend on resonance and "sound patterns," etc. The Hunt theory is the compression theory, the waves meeting at different points in the cochlea, according to the length of the sound waves. Meyer's theory takes into consideration the distance the parilymph waves travel in the cochlea. Ewald claims that the pitch is determined by the sound patterns produced by the hair cells coming in contact with the tectorial membrane. The resonance theory of Helmholtz is worked out in greatest detail and quite generally adopted. The telephone theory of Rutherford appears to be incompatible with what is known of the physiology of conduction of nervous tissues.

THE TELEPHONE THEORY.

JOHN GORDON WILSON, M. D.

In the time at my disposal to-night it is impossible to discuss fully the telephone theory. I will, therefore, limit myself to a brief review of the main reasons why the supporters of this hypothesis prefer it to the more generally accepted piano or resonance theory. In the present state of our knowledge with regard to tone perception one is justified in supporting that hypothesis which best explains the known facts in regard to tone perception; which is least in disagreement with the recognized facts of anatomy, physiology and physics, and which at the same time gives the best basis for progressive investigation. This is what I claim for the telephone theory. Under the name telephone theory are grouped various shades of hypotheses in regard to tone perception, all of which unite in rejecting the Helmholtz piano or resonance theory as unsatisfactory and all of which agree in these two essentials, viz., that the membrana basilaris or the membrana tectoria vibrates as a whole, and that while a certain amount of analysis is peripheral, the ultimate analysis is in the cerebrum.

The telephone theory has the support of some of the best physiologists, for instance, Ewald,¹ who has done more than any physiologist to elucidate the physiology of the ear; of Waller,² one of the most distinguished English physiologists. It has the support of some of the best neurologists, for instance, Mott, one of the greatest living neuro-pathologists, and Hardesty, one of the best neurologists in this country. It is agreed that the auditory impulses are conveyed in the acoustic nerve by means of the hair cells of the organ of Corti, probably through the agency of the hairs. That these hairs are not themselves capable of producing suitable vibrations would appear from the fact that their length and arrangement seems to be such as to preclude their acting as suitable vibrating structures. Such being the case, we have to seek for some mechanism which will produce suitable vibration of the nerve endings which are so closely attached to these hair cells and so offer a reasonable explanation of tone perception. The telephone theory received its first great support if not its birth from the work of my old professor of physiology, Rutherford. Since that time it has lost many of its non-essentials and still to-day influences the investigations of some of our best physiologists. In order to get a clear idea of what the telephone theory implies it seems best to give the conception of it presented by two of its most prominent exponents. Ewald¹ states it thus: A tone sets the whole basilar membrane into vibration and is analyzed into a series of waves. The totality of these waves (the sound-picture, *Sehall-bild*) produces in the brain the tone perception. Each tone corresponds to a characteristic sound-picture. Waller's² interpretation of it is very similar. The basilar membrane vibrates in its entire area to all sounds though more in some parts than in others, giving what we may designate as acoustic pressure patterns between the membrana tectoria and the subjacent field of hair-cells. So the varying combinations of sound give varying pressure-patterns comparable to the varying retinal images of external objects. Hardesty's³ conception corresponds to these applied, however, not to the basilar membrane but to the tectorial membrane.

The main reasons I would present to you for rejecting the resonance theory as applied to the basilar membrane may be briefly put as follows:

1. It is doubtful if this membrane is composed at all of independent fibers. It appears to partake more of the nature of a feltwork of interwoven fibers comparable to what appears in a thin flat tendon.

2. The radial fibers which do appear are so weighted that they cannot act as resonators.

3. The resonant theory demands that the cells of the organ of Corti must be capable of moving separately, but it would appear that these cells are intertwined and interwedged so firmly as to be impossible of so acting.

4. Physiologically no resonance theory is capable of explaining the phenomenon of tone-perception without suppositions in general physics which have not appealed to some of our best physiologists and physicists. The difficulty in regard to beats has been explained away by assuming that each tone stimulates not one but several neighboring radial fibers, assuming these fibers to be capable of acting as resonators; but no adequate explanation has been offered for what is known as combination tones. The supposition that these combination tones are due to some formation in the tympanic membrane or the incus-malleus joint is not regarded by many physiologists as satisfactory.

The up-building of a theory of resonance with the basilar membrane as the resonating structure has proved so unsatisfactory that the attempt has been made to replace it by the tectorial membrane. To me the objections to the tectorial membrane are even more serious than those which can be applied to the basilar membrane. Passing over the physiological arguments that can be raised against any resonance theory, we have the following fatal objections:

1. Ewald: *Nagel's Handbuch der Physiologie des Menschen*. Braunschweig, 1905, Bd. 3, p. 571.

2. Waller: *Halliburton's Handbook of Physiology*. Philadelphia, 1904, p. 749.

3. Hardesty: *The American Journal of Anatomy*, 1908-9, viii, 109.

1. It is obvious that in order to discuss the physiology of a body we must know its anatomic structure. So far anatomists have not been able to offer such information in regard to the tectorial membrane, but differ widely in regard to its formation and its attachments. It is a structure of such supreme delicacy that it offers great barriers to ordinary methods of study; methods of fixation at present at our disposal appear worse than useless.

2. Physicists declare that even granting those disputed characters which the supporters of this phase of the resonator theory claim to be present in the tectorial membrane, this membrane does not appear capable of acting as a resonator and is not comparable to any resonator known to physics.

It will be noted that these objections to the tectorial membrane are largely based on a want of definite anatomic knowledge in regard to its structure. Such knowledge is gradually increasing, and to this end the work of Shambaugh has been that of a pioneer. Further investigation may therefore be looked for to confirm or refute these objections; but at present we must note their existence. The objections which have been made to the basilar membrane as a resonating structure do not apply to the basilar membrane as a vibrating structure. Of the above anatomic objections which I believe to carry the most weight against the resonance theory, not one can be successfully urged against the basilar membrane as a vibrating structure. In short, it is acknowledged to be a structure capable of vibrating. The principle argument that has been urged against the telephone theory is that it leaves the exceedingly elaborate structure of the organ of Corti out of account.⁴ It has always seemed to me that this objection loses much of its force when one considers that the hypotheses of Ewald and of Waller demand such a peripheral mechanism in order to translate the complex sound waves into corresponding nerve impulses. The physical properties of sound are so totally different from what the physico-chemical properties of nerve impulses appear to be that in order to get the complexities of the sound waves adequately interpreted by the corresponding nerve impulses an intermediary mechanism of considerable complexity must be employed. If the relatively simple sensations of pressure or taste require an elaborate peripheral mechanism to translate the physical or chemical stimulus to a corresponding nerve impulse how much more elaborate must be the mechanism which translates the complex wave motions of an orchestra into corresponding nerve impulses. Accordingly the statement that the telephone theory offers no explanation of the organ of Corti seems based on an inadequate conception of the full significance of the hypothesis. At this point one must clearly recognize that the assigning of a degree of peripheral analysis to a vibrating structure is a totally different thing from assuming that the vibrating structure is acting in a manner comparable to a resonator.

In regard to the ultimate analysis of sound the evidence seems to me to point to its being central. It is a matter of every-day experience that tone perception varies greatly in individuals and is largely a matter of education and imitation. This does not appear to be easily explained if we assume a constant peripheral non-nervous mechanism for the elaborate differentiation of sound which the resonance theory presupposes. Involved in this question is the difficult and as yet undecided physiological problem of the specificity of nerves, that is, that a nerve fiber only transmits impulses producing one kind of effect. This is a question of vital importance to both the resonance theory and the telephone theory. It appears to me that the modern trend of physiology is towards the belief that the nerve fiber is capable of transmitting not one but several varieties of nerve impulses. Thus in taste, for example, it would be assumed that there is not one nerve for sweet and another for bitter but that according to the kind of peripheral irritation at the taste bud so is the central interpretation which is produced through the medium of the nerve.⁵ To go one step further, sugar produces sensations of sweetness, salt of saltiness, but a mixture of sugar and salt produces a

4. McKendrick: Schafer's Text-Book of Physiology. Edinburgh, 1900, ii, 1192.

5. Nagel: Handbuch der Physiologie des Menschen. Braunschweig, 1905, Bd. 3, p. 641.

sensation totally different from either sweetness or salt.⁶ Similar interpretations are also applied to the other senses. I do not claim that with our present knowledge the telephone hypothesis explains everything physiologic and pathologic, but I do claim that it offers a sounder basis from which to attack the complex difficulties of the physiology and the pathology of the auditory nerve than does the resonance theory.

WHY A PERIPHERAL TONE ANALYSIS IS NECESSARY TO EXPLAIN THE PHENOMENA OF TONE PERCEPTION.

GEORGE E. SHAMBAUGH, M.D.

At a previous meeting of this society, Feb. 9, 1909, I discussed briefly the conclusions reached in my work on the physiology of the cochlea. I pointed out that the stimulation of the nerve endings of the acoustic nerve in the cochlea is undoubtedly brought about by an interaction between the projecting hairs of the hair cells, and the overhanging membrana tectoria. At this time I discussed some of the reasons for the conclusion that the membrana tectoria and not the membrana basilaris is the active agent which brings about this interaction by responding to the impulses of sound waves passing through the cochlea. I also explained at that time that our conclusions as to the probable mode of response which the membrana tectoria gives to the various tone impulses must be determined largely by ascertaining what mode of response will best explain the phenomena associated with tone perception, since the mechanism is too delicate and too complex to permit of physical demonstration. In this respect the ear is exactly like the other special sense organs. The final explanation of the mechanism of all the special sense organs is in the nature of an hypothesis that eludes actual demonstration. In discussing the probable action of the membrana tectoria, I pointed out that three possible modes of response suggest themselves. By the one the whole of the membrana tectoria would be thrown into motion by every tone, thus bringing about a stimulation of all the nerve endings in the cochlea for every tone. By the second mode the highest tones would throw into vibration the tiny tectorial membrane near the beginning of the basal coil, while each succeeding tone lower in the scale would cause to vibrate a larger and larger area of the tectorial membrane until the lowest tones would throw this entire membrane into vibration. By the third mode of response different segments of the tectorial membrane would be thrown into vibration, each for a tone of a different pitch.

In my discussion at that time I made the statement that the first mode of response whereby the whole of the membrana tectoria would vibrate to the impulses of every tone, thus stimulating all the hair cells, was but a restatement of the telephone theory, an untenable hypothesis that had long since been discarded by physiologists. One of the members, in discussing my paper, took exception to my statement that the telephone theory was untenable, and asserted that he was an advocate of this theory, but gave no arguments supporting his position. When it was suggested that we devote part of the time of this meeting to a discussion of the telephone theory, I very willingly consented to present some of the arguments why the telephone theory is untenable, and why the opposite hypothesis, that of a peripheral analysis, is indispensable in accounting for the phenomena of tone perception. I must admit, however, in taking up this discussion, that I have felt a good deal as one would when asked to defend the theory that the earth revolves around the sun rather than that the sun makes revolutions about the earth. The real arguments appear to be all on the one side, yet to attempt to prove to another in a few minutes' discussion that the latter hypothesis is untenable might not necessarily appear conclusive.

The most conspicuous phenomenon to be accounted for in connection with tone perception is that of subjective tone analysis. This is the faculty which the ear possesses of analysing into its component elements complex tone impulses. There are two theories as to where this tone analysis is accomplished. According to one, it is accomplished by the peripheral apparatus in the cochlea. According to

6. Nagel: Loc. cit., p. 643.

the other theory, this analysis is a function of the cerebral cortex. These two propositions may be stated graphically as follows: Supposing the tones, a, b and c, are sounded together, the complex impulse arising is analyzed subjectively, so that we are able to recognize the separate tones, a, b and c. According to the theory of peripheral analysis, when this complex impulse, which we may designate by X, reaches the cochlea, it is analyzed so that separate groups of nerve fibers are stimulated for each of the three tones, a, b and c. When the three separate sets of nerve impulses arising in this way, which we may designate by a', b' and c', reach the center in the cortex, they are perceived as the tones a, b and c.

According to the hypothesis of a central cortical analysis all of the nerve endings in the cochlea are stimulated by the complex tone impulse X, thus causing the nerve trunk to act as a unit and the resulting nerve impulse conducted by the nerve trunk, which we may designate as X', is analyzed in the cortical center, so that we get the perception of the tones a, b and c.

The theory of a peripheral tone analysis is inseparably connected with the Helmholtz resonator theory of tone perception. Long before the time of Helmholtz, however, the idea had found expression that the perception of the various tones takes place in separate parts of the cochlea tube, the higher tones in the basal coil, the lower tones near the apex of the cochlea. It was Helmholtz, however, who gave this theory its greatest scientific support, and especially emphasized how such a selective action in the cochlea was possible, on the principle of physical resonance. This theory of a peripheral tone analysis is not only the fundamental principle in the resonator theory of Helmholtz, but it is the fundamental conception in all the important theories of tone perception that have been advanced since the time of Helmholtz.

From purely anatomical reasons this peripheral specialization of function in the cochlea, the localization for the perception of the various tones in separate parts of the cochlea, seems a priori to be probable for the following reasons: In the first place, the long rows of hair cells running from one end of the cochlea to the other constitute a mechanism admirably suited to the requirements of such a theory. In the second place, the elaborate mechanism found in the cochlea makes it highly probable that we have located here a peripheral tone analysis. Moreover, such a peripheral specialization of function, as has been pointed out by McKendrick, brings the organ of hearing in accord with the other special senses, as taste, smell and sight. Furthermore, to quote from McKendrick (Schaeffer's Physiology, page 1192), "The most obvious objection to any theory which dispenses with peripheral analysis is that it leaves the exceedingly elaborate structure of the organ of Corti, and, indeed, of the cochlea as a whole out of account, or, to put the matter in another light, it assigns to that organ a comparatively simple function (like that of a vibrating membrane), and one which could be performed by a more simple structure. Furthermore, the holder of such a theory, while recognizing the analytic powers we undoubtedly possess, must refer these powers to the cortex cerebri and practically admit that the problem cannot be solved."

The theory of a central cortical analysis was first advanced by Rutherford, and was called the "telephone theory" of tone perception. It was based upon the assumed existence of an analogy between the phenomena of hearing and that of an ordinary telephone device. This analogy, however, is not a true one, for while the telephone is capable of taking up a complex sound impulse, and of conveying it to a distant end piece, where it is again reproduced unaltered, the telephone has no power of analysis. It is the same complex impulse which entered the receiver that is reproduced in the distant end piece. The analysis which we perceive when listening at the telephone, is, of course, accomplished in the ear itself. The proposition can be graphically represented as follows: The complex impulse arising from the tones, a, b and c, which we represented by X, impinges on the telephone receiver and is transferred as X' to the distant end piece, where it is again reproduced, not as the tones a, b and c, but as the complex X. Compare this with what takes place in the phenomena of hearing. The failure of the

analogy is at once apparent. The actual tone analysis is, of course, accomplished after X enters the organ of hearing. It is immaterial whether this reaches the ear before or after it has passed through the telephone.

The statement has just been made that Ewald is a supporter of the telephone theory. Ewald's conclusion was based on observations he had made of the vibrations of a taut rubber membrane in an interesting ear model he had constructed. Ewald, proceeding from the hypothesis, which has been generally accepted since the work of Helmholtz on tone perception, that the membrana basilaris is the structure in the cochlea which is thrown into vibration by the impulse of sound waves, constructed an ear model in which a thin rubber membrane, varying in width from one end of the cochlea to the other, took the place of the membrana basilaris. On conducting sound waves into this model, Ewald was able to observe and to photograph movements of this taut rubber membrana basilaris. In these experiments Ewald found that, instead of vibrating in separate segments, as the membrana basilaris should do, according to the Helmholtz theory, this rubber membrane, as a whole, was thrown into wave-like motions by every tone. Ewald concluded, on the basis of these experiments, that the membrana basilaris in the cochlea also vibrated as a whole in response to every tone, and that the "sound pictures" thus produced were interpreted in the cortex, where, of course, the final step in perception takes place. This taut rubber membrane in Ewald's ear model bears no more resemblance to the complicated structure of the membrana basilaris than does a sheet to the strings of a piano forte, and any demonstration of the possible action of this rubber membrane cannot be accepted as a demonstration of the probable action of the membrana basilaris. As a matter of fact, however, Ewald's theory of tone perception is as much a theory of peripheral analysis as is the resonator theory of Helmholtz. Ewald states emphatically over and over again that the idea that the nerve trunk acts as a whole in the conduction of sound impulses is untenable, and that it is absolutely necessary to have different groups of fibers in the nerve stimulated for the different tones. This peripheral analysis is accomplished in the Ewald theory by assuming that only those hair cells in the organ of Corti are stimulated which occupy the crests of the wave-like undulations of the basilar membrane. The different characters of the wave-like undulations produced by the tones of different pitch result in the stimulation of different groups of fibers for each tone in the scale.

The theory of a peripheral tone analysis, for reasons given above, seems a priori to be the probable one, whereas the telephone theory, the hypothesis of a central analysis, is entirely without scientific support. There are other phenomena beside that of tone analysis that must be accounted for in a theory of tone perception. These are, in the first place, the so-called secondary phenomena of tone perception, and, in the second place, the occurrence of diplacusis, that is, the perception of a tone of a different pitch in the affected ear from that heard in the normal hearing ear; also the occurrence of certain peculiar types of subjective noises. Discussions of the occurrence of the secondary phenomena of tone perception, such as beats, difference tones, summation tones, intermittent tones, consonance, dissonance, etc., etc., has occupied a conspicuous place in the literature on the theory of tone perception. The problems are hardly suited for discussion here. The conclusions reached, however, are in accord with the theory of peripheral analysis. In fact, in the resonator theory of Helmholtz is found not only a natural explanation of most of these secondary phenomena, but, indeed, their only plausible scientific explanation. The theory of central analysis, the telephone theory, has no satisfactory explanation for the occurrence of these secondary phenomena.

Finally the occurrence of certain peculiar symptoms in connection with pathological changes in the labyrinth, such as tone islands, diplacusis, etc., can be accounted for plausibly only on the hypothesis of a peripheral tone analysis in the cochlea. For example, the phenomenon of tone islands and of circumscribed defects in the tone scale, a condition which is known to occur only in connection with diseases involving the cochlea, is readily explained by the destruction of circumscribed areas of the organ of Corti, provided we accept the theory of peripheral tone analysis. Whereas, if we accept the

theory that all of the hair cells in the cochlea are stimulated by every tone, and that tone analysis is accomplished in the cortex, there appears no plausible explanation for the occurrence of this well known phenomenon. The same holds true regarding the occurrence of diplacusis, where a tone is heard falsely in the affected ear. This is readily accounted for in the theory of a peripheral analysis by assuming a circumscribed alteration in the vibrating structure in the cochlea which caused a part of this structure to respond to a tone of a different pitch from when in its normal condition. On the other hand, with the telephone theory referring the analysis to the cortex, there appears no explanation for the occurrence of this phenomena.

The peculiar types of tinnitus aurium that occur in connection with diseases of the cochlea, for example, the development of tinnitus of a certain pitch, as the result of an injury to the ear caused by a shrill whistle of the same pitch, speaks for a peripheral rather than a central analysis. Again, the finding of circumscribed areas of degeneration in the organ of Corti in animals previously subjected to shrill tones of a certain pitch, is in itself an actual demonstration of the existence of peripheral rather than of central analysis. The following conclusions seem quite clear: First, that the telephone theory of central tone analysis is not only untenable but is lacking in scientific support; second, that the theory of peripheral tone analysis in the cochlea is indispensable for the following reasons: 1. The elaboration of structures in the cochlea all point to the conclusion that a peripheral specialization, that is, a peripheral tone analysis, is located here.

2. A comparative physiological study of special sense organs points toward a peripheral specialization of function in all of the special sense organs. This is as true of the ear as it is of the other special senses.

3. The secondary phenomena of tone perception are plausibly accounted for only on the hypothesis of a peripheral tone analysis in the cochlea.

4. The peculiarities in tone perception that occur in connection with pathological changes in the labyrinth, such as tone islands, or defects in the midst of the tone scale, and the phenomena of diplacusis, as well as the occurrence of peculiar types of tinnitus aurium, argue in favor of a peripheral rather than a central tone analysis.

5. The production of circumscribed areas of degeneration in the organ of Corti as the result of exposure to long continued overstimulation by intense tones of a certain pitch amounts to a practical demonstration of the existence of peripheral analysis.

DISCUSSION ON THE PAPERS OF DRS. WILSON AND SHAMBAUGH.

Dr. A. H. Andrews, referring to the question of whether fishes hear, called attention to the fact that two stones struck together in the water produce an exceedingly unpleasant sensation in the ears of one who is under water. It has been shown that fishes can be driven toward a net by this method. It would seem, therefore, that fishes must be susceptible to the same sound impressions as affect the ears of individuals under water. Dr. Shambaugh spoke of the subjective noises being produced by a long continued shrill whistle, and that they were always of the same pitch as the whistle producing them. Dr. Andrews does not know how these subjective noises are produced any more than he understands the physiologic process of thought. It is known that one can think so long and so intently upon a given subject that he cannot think of anything else. This may have some relation to the tinnitus which is caused by the long continued intense sound mentioned by Dr. Shambaugh.

Dr. J. Holinger:—My views as to sound perception are pretty well known. The presentation to-night by Dr. Wilson of his telephone theory is new to me. I would ask Dr. Wilson how he explains the following finding: A man stands beside a locomotive while its steam whistle emits a loud shriek. The man remains deaf for the rest of his life for any tone of the pitch of that whistle, but suffers from an uninterrupted subjective noise of that pitch. At death, degeneration of certain parts of the cochlea are found and ascending degeneration of certain parts of the acoustic nerve. Further similarly conclusive arguments are gathered now at

the laboratory from animals. If, as Dr. Wilson explains, with each sound the whole of the basilar membrane vibrates, why should a circumscribed degeneration of the nervous part affect the hearing or perception of one certain set of tones and not others? Furthermore, the problems of the middle ear are not liable to support Dr. Wilson's standpoint.

Dr. Carlson called attention to the fact that no matter what theory is adopted, that of central or peripheral analysis, it must not be forgotten that the ultimate analysis in both is central, but in order to have central differentiation there must be differentiation in the impulses that go to the center, because, if they were identical, there could not be any central differentiation. A tuning fork vibrating one hundred times will send its nervous impulses along different sets of nerve fibers from those which conduct the vibrations of a tuning fork vibrating two hundred times. Rutherford stated that the two impulses are conducted by the same fibers and differ only in rate, and that a central differentiation is made on this basis. That is, central analysis or the telephone theory. Ewald's theory is based on peripheral analysis. Rutherford assumes that the highest pitch of the Galton whistle gives, say 40,000 nervous impulses per second. Comparative physiology of nerve fibers and cells shows that it is highly improbable that they can conduct at that rate. It is possible, but not probable, that the auditory nerve can conduct impulses at the rate of ten or thirty thousand per second, but, as conceived by Rutherford, it cannot conduct impulses corresponding to a number of tones at the same time, as the facts of experience demand. It ought to be possible to connect the auditory nerve with a capillary electrometer and measure the number of impulses generated by different tones. The difficulty in doing experimental work is that one can rarely injure one part of the hearing apparatus without injuring the whole apparatus and the uncertainty in determining auditory defect in animals. Therefore, the final answer must come from the clinician.

Dr. J. Gordon Wilson stated that in this discussion the fundamental differences between the resonance theory and the telephone theory did not seem to be clearly recognized and so discussion of their relative merits lost much of its force. What are the essential points in the telephone theory as enunciated by Ewald or by Waller? Namely, that the basilar membrane vibrates as a whole to the sound waves which there produce distinct peripheral impulses in turn communicated through the hair cells to the acoustic nerve; further, that the ultimate analysis in the tone perception is central. It will be noted that the telephone theory acknowledges distinct peripheral impulses in the cochlea, but this is a totally different thing from peripheral analysis due to resonators, demanded by the Helmholtz theory. In regard to tone islands and gaps, no less an authority than Nagel has stated that these are capable of being simply explained by the Ewald hypothesis. The telephone theory does not claim at the present moment to explain everything, but it offers a good working hypothesis along the lines of which progress may be made and it is not open to those fundamental anatomical and physiological objections which can be urged against any resonance theory.

Dr. George E. Shambaugh (closing discussion) stated that he had listened closely to the remarks by Dr. Wilson purporting to be arguments in support of the telephone theory, and had failed to hear a single scientific argument in support of this hypothesis. He is therefore obliged to repeat the statement made at a previous meeting that not only is the telephone theory untenable, but that it is without supporters among physiologists to-day. The assumption that Ewald is a supporter of the telephone theory is, of course, a mistake, since Ewald's theory is as much a theory of peripheral analysis as is the resonator theory of Helmholtz. Occasionally some one may persuade himself, as Dr. Wilson has done, that he is a supporter of the telephone theory, but as soon as he attempts to give his reasons he at once chases himself up a tree. The chief argument Dr. Wilson has offered to support his view is that he conceives of a telephone theory modified from the original. But when he attempted to point out wherein this modification lies he begins at once to advocate, as Dr. Carlson has pointed out, the principle of peripheral analysis, just the opposite hypothesis from the telephone theory; the theory of central analysis.

Another good example of the illogical position assumed by certain would-be supporters of the telephone theory is the case of Professor Hardesty, of the University of California, referred to by Dr. Wilson. About a year after my first paper on the physiology of the cochlea appeared, Professor Hardesty published a treatise on the same subject, in which he expressed practically the same conclusions which I had reached, namely, that we must look to the membrana tectoria rather than the basilar membrane as the active agent in bringing about a stimulation of the hair cells in the organ of Corti by responding to the impulses of sound waves in the endolymph. In his paper he asserts over and over again that his conclusion as to the probable action of the membrana tectoria in responding to the impulses of the various tones differs from the conclusion I had reached, in that he advocates a modified telephone theory. His modification of the telephone theory, however, is nothing short of a substitution of the principle of peripheral analysis for that of central analysis which constitutes the fundamental conception of the telephone theory. That Professor Hardesty has accepted in his paper the conclusions I had reached as regards the necessity for peripheral analysis, is brought out very clearly where he discusses the possible cause for the phenomenon of tone islands and defects in the tone scale. These may be produced, he contends, by the occurrence of circumscribed calcareous deposits in the membrana tectoria. Now it is quite clear that if the interference with the motion of a part of the tectorial membrane, such as would be occasioned by a circumscribed chalk deposit, will produce a defect in the tone scale, then the converse is also true, namely, that the vibration of this particular part of the tectorial membrane will result in the perception of the part of the tone scale included in this defect. This is as concise a statement of the principle of peripheral analysis as one could wish. In the telephone theory every hair cell in the cochlea will be stimulated for every tone. It is clear, I contend, that from whatever point of view the problem is approached, anatomical, physiological or clinical, there is no escape from the conclusion that the principle of peripheral analysis is indispensable in the theory of tone perception.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

Meeting of Feb. 8, 1909.

A regular meeting was held Feb. 8, 1909, with the president, Dr. Frank Allport, in the chair.

ACUTE CHOROIDITIS (?)

Dr. G. J. Schneider, Elgin, Ill., exhibited a boy, aged 17, who noticed, six months ago, that he could not play ball because he never was sure of the position of the ball. Examination showed cornea, sclera, iris and reflexes were normal. Vision, left eye equals 4/200; right eye, 20/40. With the ophthalmoscope the macula of the left eye was seen to be enlarged to one-half the size of a silver dime, circular, with small dark radiating striæ; right eye, the ground was similar to that in the left eye except that the macula was smaller and the striæ were not so marked. Physical examination negative; personal and family history negative except that one brother has strabismus.

Dr. Dodd thought this case to be one of acute choroiditis due to a severe chilling. He has seen several of these cases in which he had obtained a definite history of chilling.

Dr. Snydacker that it is a retinal lesion rather than a choroidal lesion.

NEUORETINITIS DIABETICA (?)

Dr. Major H. Worthington exhibited a man, aged 51, who about two months ago noticed that he could not distinguish objects with the left eye. For the past five or six years he has suffered much from thirst and has had excessive urination. Vision, right eye, 20/20; left eye, 9/200. In the eye there is every appearance of albuminuric retinitis, although repeated examinations have shown that there is no albumin in the urine, but from 0.8 to 1.5 per cent. of sugar; specific gravity 1022. The mother died of pulmonary tuberculosis, and the father from a

carbuncle of the cheek. Patient had typhoid fever thirty years ago. Denies venereal history.

Dr. Casey Wood was inclined to regard this as a case of thrombosis of the lateral vein, showing the picture of changes in the vein.

PUNCTATE SUPERFICIAL KERATITIS.

Dr. George F. Suker exhibited this patient. He was treated for four or five weeks on the expectant plan, and by exclusion he discovered that the middle turbinal was cystic at its posterior end, involving the anterior ethmoidal cells. Vision was 22/100—; correction, + 2, combined with —3, axis 25. Vision did not improve under treatment, and ten days ago the ethmoid cells were removed, together with the middle turbinate. Vision, with correction, now is 20/20. The spots in the cornea are now very minute. They never were confluent. There was never any evidence of inflammatory reaction. The other eye was never involved in the process.

Dr. Thomas Faith thought that unless the lesion in the cornea had been very much worse than it now seemed to be, there must have been something more than a corneal trouble. There was some evidence now of corneal trouble, but hardly enough to have reduced vision to 20/100.

Dr. Suker said that these spots were visible to the naked eye, and now they can scarcely be seen with Berger's loop and condenser.

CILIA IN ANTERIOR CHAMBER.

Dr. Mortimer Frank showed a patient, 21 years old, who, when three years of age, was accidentally struck in the eye with the point of a pair of scissors. One of the cilia of the eyelid evidently had been driven into the eye, and has been imbedded there ever since, to the temporal side of the limbus, midway between the posterior surface of the iris. It has never produced any irritation.

Dr. C. A. Leenheer saw a patient a year and half ago who was working with a drill which broke and produced a perforation injury of the cornea. The metal carried in one of cilia, which imbedded itself in the lens. The lens is almost completely absorbed. One end of the cilia was on top of the iris. With a plus lens the patient has about 20/100 vision in that eye.

Dr. H. B. Young some time ago saw a case of cilia in the eye of twenty years' standing, and although the lens has been absorbed, there were no symptoms.

DOUBLE TARSECTOMY.

Dr. Mortimer Frank exhibited a young man on whom he did a double tarsectomy for trachoma, with complete pannus of both eyes, seventeen months ago. The result was entirely satisfactory.

A CASE OF TRAUMATIC OPTIC ATROPHY.

Dr. A. H. Andrews:—F. K., aged 27, a machinist, was injured Dec. 27, 1908, by falling backward and striking his head against a steam pipe. The patient thinks he was unconscious for a few minutes only, vomiting afterward, but walked to his home a few blocks away. The next morning he discovered that he was totally blind in the right eye. I examined this patient first on December 31. There was an abrasion on the back of the head on the right side, but no depression of the skull. The fundus of the right eye was examined under a mydriatic. The retina was white and thrown into folds, the upper temporal and lower nasal being most prominent. The difference between the depressions and elevations seemed to be 3 or 4 D. Both the veins and arteries were smaller than normal and the margin of the disc could not be distinguished. The patient was placed in the hospital for two weeks, where hot applications and massage were administered. The folds in the retina gradually smoothed out, and the vessels, especially the veins, have gradually assumed their present condition. As now seen the veins can hardly be distinguished in places, while in other places there seems to be a small amount of blood in them. The arteries are more uniform in size but much smaller than normal. A number of granulation areas can be seen. Along all the larger blood vessels can be seen perivascular degeneration. The principal point

of interest in the case is the rapid fundus changes evidently caused by interference with the circulation, due to a distant injury.

Dr. Thomas Faith thought that Dr. Andrews' case was one of fracture of the orbit, which would account for the rapid changes taking place.

Dr. Andrews stated that the rapidity of the vascular changes was most interesting. Ten days ago the veins were full, although not distended. Three days later they were not quite so full, and three days ago they were empty. At the present time there is practically no blood in the veins. The perivascular degeneration has been progressive, as the veins and arteries shrunk. There has been no pain or other disturbance, other than that the patient is totally blind in that eye.

INFLAMMATORY (TUBERCULOUS) SWELLING IN CONJUNCTIVA.

Dr. Charles P. Small exhibited a young man who had an inflammatory swelling in the conjunctiva of the right eye, which somewhat resembled a phlyctenula. In the left eye there is a deep-seated opacity of the cornea. The patient appears to be entirely well, although when a young boy he had trouble with his hip joint, thought to have been caused by a fall. A few years ago the joint was resected and is now ankylosed. He also had scarlet fever with otitis media, the suppuration continuing for a number of years, then stopping, only to break out afresh. The ear is still suppurating. The Calmette reaction was looked for, the tuberculin being instilled into the left eye. A marked reaction was obtained.

Dr. W. E. Gamble thought that the process was rather too acute for tuberculosis, and that while a positive Calmette was obtained, this did not necessarily imply that the tuberculosis was of the eye. The focus might be elsewhere in the body.

Dr. Oscar Dodd considered it a typical case of tuberculous sclero-keratitis, such as Verhoeff, of Boston, reported. Verhoeff explained the paroxysmal appearance and disappearance of the nodules by assuming the presence of some focus in the body elsewhere than in the eye. Therefore Dr. Small's case would probably soon subside. He does not like to use the Calmette test because of the bad results which are likely to follow. He knows of instances where the reaction persisted for months, even starting up a latent process.

HYSTERICAL BLEPHAROSPASM; REPORT OF CASES.

Dr. N. Remmen reported three cases of hysterical blepharospasm.

Dr. L. W. Dean referred to a case of double-sided functional amblyopia and blepharospasm with one-sided deafness that he had had under observation and in which treatment was ineffectual. Finally the patient was placed in a college for the blind, where she was put to work in the kitchen. After two or three months she was discharged, apparently well, although the fields were badly constricted. Eight or nine months ago she returned with a one-sided amblyopia and blepharospasm, from which she is still suffering. Treatment is ineffectual.

Dr. D'Orsay Heelt emphasized the fact that hysterical blepharospasms, as well as many other hysterical conditions referable to the eye and eyelid, are of great interest to the neurologist, who is likely to see quite as many of these cases as does the ophthalmologist. It is regrettable that these patients are not seen early enough, as this is a matter of some consequence in instituting successful treatment, depending upon promptness, more especially in the cases of very acute onset. When a patient has been subjected to a protracted treatment at the hands of the oculist, the chance for a timely and efficient cure is certainly impaired. He thought that there was some ambiguity clinging to the term blepharospasm, and that it was too often used interchangeably with the more common expression of habit spasm or tic. The eyelid tic, particularly in its unilateral form, is perhaps the most common of all tics. The condition of blepharospasm should be more thoroughly differentiated from tic than it is. A blepharospasm should be regarded as such only so long as it is contingent upon an acute sensory irritation, a demonstrable lesion or some irritation succeeding it. As soon as the source is removed and the irritation no longer continued, it should cease to be called a spasm, and becomes purely a tic. The physical has been replaced by the psychic

impression, and the subsequent treatment must depend upon a thorough appreciation of this fact.

With reference to the second case reported by Dr. Remmen, and referred to by him as incurable, Dr. Hecht thought it should be looked upon as an obstinate case, one not likely to yield as quickly as if the onset had been acute, but nevertheless not without an ultimately good prognosis.

As concerns the hysterical ptosis, referred to as occurring in a child, that manifestation was rather unusual, but not at all rare, if one keeps reminded of the fact that hysteria occurs very much more commonly in children than is generally thought. Eyelid tic, chronic blinking, is very common among children. In making a diagnosis of hysterical ptosis, he thought it relevant to add that myasthenia gravis should not be lost sight of as a diagnostic possibility. Dr. Hecht cited an instance in his own practice of what the oculist would have chosen to call hysterical blepharospasm, which could not be so regarded if it is admitted that no demonstrable sensory irritation was causative of the condition. A man had attended a banquet, in the course of which a flashlight picture was taken. The technic had not been perfected to the point of collecting the smoke in bags, as is since the custom. With the bright flash of light there developed a strong tonic contraction of the lids of both eyes, which very promptly gave way to continued clinic spasms. He was seen within forty-eight hours of the occurrence, and after a careful examination Dr. Hecht concluded that there was more of a psychic element than one of sensory local irritation, although the smoke might be regarded as such. A very powerful galvanic current was passed through the head by placing an electrode at each temple, producing a well-known sensation of a flash of light. This galvanic sensory impression, re-enforced by emphatic suggestion, caused an immediate cessation of the aggravated tic, and, after two more applications on successive days, permanent relief was had. Here was an instance in which the promptness of the remedy applied, together with some ingenuity in the plan of treatment, was conducive to a favorable result.

Dr. W. E. Gamble reported a case in this connection. A child, four years of age, developed blepharospasm after an attack of measles. All efforts to produce a cure were ineffectual. The mother of the child had a bottle of peppermint in the cupboard on the same shelf with a bottle of atropin. One morning the child got hold of the atropin bottle, drank some of its contents and became thoroughly intoxicated with atropin. The necessary antidotes were administered, and the child recovered. The blepharospasms had subsided, and remained away for two weeks, and then returned. The child took violently ill with pneumonia, and the blepharospasm subsided and never returned.

Dr. William H. Wilder asked Dr. Hecht in regard to the differentiation of these cases of tic from blepharospasm. Sometimes it is quite difficult to say whether there is any lesion in the eye that might excite blepharospasm. Sometimes such cases seem to be excited by retinal hyperemia manifested by peculiar granular appearance of the pigment layer of the retina around the yellow spot. Such persons oftentimes have more or less photophobia, and often are persons to whom the electric light is very annoying. He has had one case in which he had to interdict the use of electric light for reading because of its influence on the retina. These cases are more marked when caused by a very strong flash, such as is seen when a strong current is suddenly grounded. He has seen cases where such a flash has caused both conjunctival and retinal hyperemia. The men who get that way are put to work to blow out a plug which resists the ordinary mechanical means of blowing out. The face must be protected with a very dark glass to avoid burning. These men will often have a blepharospasm follow on the retinal hyperemia, so that it is difficult to differentiate between the tic and the blepharospasm caused by some demonstrable lesion.

Dr. Hecht said that it was perhaps not wholly essential that the sensory irritation be demonstrated since, to his way of thinking, anything that would induce a hyperesthesia in the ocular apparatus could be regarded as sufficiently irritant and unpleasant. If it were enough to cause involuntary tonic or clonic contraction of the eyelid, it, properly speaking, would be a spasm.

Necessary for its continuance would be a psycho-neurotic element, and with the former removed, but the latter remaining, the premises were favorable for the superimposed tic; in other words, in all or nearly all of the cases that develop tic there is a substratum of psychic or neuropsychic instability which must be sought for and recognized. Given the same amount of sensory irritation in a normal individual, a tic would not be expected to supervene.

Dr. Wilder asked whether neurologists entertained the idea that autointoxication plays any rôle at all in producing these habit spasms.

Dr. Hecht said that so far as the curability of tics is concerned, it has been clearly demonstrated that it is a matter of stimulating in patients a better capacity for motor discipline and persistent efforts at re-education. Tics do get well, even after they have been chronic. He has had occasion to treat several apparently intractable eyelid tics by keeping patients in a darkened room, with the instruction to rhythmically half open and close the eye, while following this maneuver intently by looking into a looking-glass and persisting in it for one hundred counts. Many modifications of these procedures may be instituted, and considerable ingenuity applied in this educational method of treatment. It may take many months to bring about improvement, and then again, with the slightest provocation, there may be recurrences, but in spite of these handicaps not all cases that are chronic and discouraging should be looked upon as incurable.

Dr. Remmen said that in one case he corrected the refraction error and encouraged the family not to refer to the patient's trouble. The patient recovered. The tic in this case consisted of a little jerking of the eyelids, a twitching. He believes that a blepharospasm is a very much more violent affair than the ordinary tic.

IMPROVED SHELL FOR TENON'S CAPSULE.

Dr. George F. Suker exhibited a shell that is a substitute for the shell usually used after a Mule's operation. It is enclosed in the capsule of Tenon, and gives a large stump for an artificial eye. The shell is an almond-shaped glass globe. It causes no irritation, and permits of free lateral movement of the artificial eye.

Dr. Osear Dodd has had the trouble of not having an artificial eye fit properly over the ordinary sphere. Motion is suspended or imperfect. He thought that Dr. Suker's shell would probably obviate that difficulty.

Dr. Suker emphasized the necessity of perfect asepsis. The conjunctival sac must be absolutely free from discharge, more so than in a cataract extraction. Since using this modified sphere, he has had less difficulty in fitting an artificial eye, and better results with regard to motion.

WILLIS O. NANCE, Secretary.

Regular Meeting, April 12, 1909.

A regular meeting was held April 12, 1909, with the president, Dr. Frank Allport, in the chair.

CASE OF INTERSTITIAL KERATITIS.

Dr. W. F. Coleman reported a case involving the left eye, the infiltration extending over the whole cornea so that the patient barely had light perception. He was given mercurial treatment and injections of sodium saccharate, and, now, after one year, he has 20/20 vision. All that remains is a circular band intermediate between the center and the circumference of the cornea, of a dusky-red opacity without any Hirschberg's lines. On January 21 the opacity was materially less and vision was 20/25; there was photophobia, lachrymation, moderate discomfort, no iritis, but the infiltration had extended to the right eye, and the patient in one week barely had light perception. After six weeks he had an iridocyclitis. There was no typical vascularization of the cornea until six weeks after the initial stage. He was finally put under the 500 candle-power light for fifteen minutes daily and in one week his vision came up to 15/100 and in two

weeks more to 20/30. In the last three weeks he had a relapse, with vision reduced to 20/40, with considerable pain, which was relieved by blood-letting of the temple.

CALCAREOUS KERATITIS

Dr. W. F. Coleman presented a patient with a calcareous keratitis, a transverse calcareous film of long standing, at least thirty years. An iridectomy had been done, with some improvement. There was no history of previous eye trouble to account for the condition. Dionin for one year proved ineffectual; then sodium chlorid, 5 per cent., was injected and after the first two or three injections there was considerable improvement, although there is no reason to hope for a permanent improvement.

Dr. Oscar Dodd treated a somewhat similar case, but with less calcareous infiltration and consequently better vision. He operated on both eyes and got a very excellent result. Vision improved from 15/200 to about 20/80, and the intense irritation and dread of light passed away. The infiltration was above the Bowman's membrane, except at the margin of the cornea, where it extended into the deep layers of the cornea. He was able to peel off the infiltration and the epithelium grew over the cornea with very slight opacity and a greatly improved condition. Dr. Coleman also presented an improved membrane punch.

VOLUNTARY RECESSON OF THE GLOBE WITH SIMULTANEOUS LID CLOSURE.

Dr. Frank Brawley exhibited this case for Dr. Murray.

A CASE OF ANIRIDIA.

Dr. Hugh Blake Williams reported a case of aniridia occurring in a girl aged 9 years, one of four children, all healthy and the parents as well as far as the eyes were concerned. Vision in the right eye was 4/200; left, 5/200. She had a mixed nystagmus, microphthalmus and total congenital aniridia, with pyramidal cataracts and the cortex of both lenses somewhat opaque. With an apparatus suggested by Dr. Chas. H. Beard and devised by him, consisting of two blackened coquilles with stenopaic slit at 180 degrees, vision came up to 20/200, with crossed stenopaic slits, one of 90 degrees, the other at 180 degrees, to 21/100. Then Mr. J. T. Brayton constructed two brass bowls with a curvature equal to 25.00 D., and over the eyeball a disk about three-quarters of an inch in diameter was cut out and crossed stenopaic slits were placed in this. By making the curvature of these disks 9.75 D. toward the eye, vision came up at once. She has 8 to 16 D. myopia. He then ground a pair of minus 8 disks in a light tint about one, placed them in front of the stenopaic slits, bringing vision up to 20/60, so that the patient is now quite comfortable, has no difficulty in sunlight, sees well in the distance, but vision for near is still very much reduced, and she prefers for reading the number four coquilles.

MELANOSARCOMA.

Dr. H. H. Brown reported the case of a man, aged 51 years, who was operated on eleven years ago for an epithelioma of the upper lip. He made a rapid recovery without evidence of further involvement for about fifteen months, when it was found necessary to remove all the lymphatics of the right side of the neck. Six months later the submaxillary gland on that side was removed, and a year later he had the sublingual gland removed. For five years he seemed to be in perfect health. Last fall his sight began to fail and in January, 1909, he had a distinctly opaque cornea with tension plus 2. An interesting feature of the condition was that it would last for three days and then all evidence of irritation would subside and the eye assumed almost a normal appearance. In March Dr. Brown did a very deep iridectomy, with the hope of relieving the man from the frequent attacks of glaucoma. Tension would disappear under enormous doses of salicylate of sodium, 30 grains, every three hours, and the man would be perfectly comfortable for three days, when there was a recurrence of the condition. Finally an enucleation was done, and an examination of the tissues removed disclosed a

melanosarcoma, which had its beginning in the ciliary body in the upper nasal quadrant and extended back nearly to the disc. The man's physical condition was excellent throughout.

FIBROMA OF CORNEA.

Dr. William A. Mann reported a case of congenital fibroma of the cornea in a girl aged 19 years. The tumor was vascular and extended from just above the limbus to below the center of cornea, was circular, 9 mm. in diameter and 3 to 4 mm. in thickness. There had been no enlargement since birth.

The tumor was removed with a Graefe knife and the surface curetted. The growth was examined by Dr. Zeit. Vision improved from 1/100 before operation to normal after operation.

Dr. Mann stated that in looking over the literature he found a few cases of fibroma of the cornea, but only one congenital case.

AN ANALYTICAL CRITICISM OF THE CARDINAL EYE SYMPTOMS OF EXOPHTHALMIC GOITER.

Dr. George F. Suker, after presenting the signs of the disease, drew the following conclusions: From the description and analysis of the various signs we can with propriety discard all the various theories advanced for the causation of these signs excepting the increased muscle tonus which is brought about by the direct activity of the thyroid toxin, either by way of the nerve fibers or directly upon the muscles themselves. No doubt the individual anatomic construction of the conjunctival fascia, as well as the individual size of the globes, are but incidental contributing factors. Also, that the so-called Muller's muscle is not the important factor, while the cylinder of plain muscle fibers springing from the septum orbitale (Landstrom) is all-important. It can also be seen that all of the lid signs are exceedingly closely related as to the direct cause, but symptomatically independent of one another. That there is a causal relation between the Stellwag and von Graefe sign must be accepted. One sign is just as valuable as the other in all its aspects, and the characteristics of all are very similar. The exophthalmos sustains a slight relation to all, a contributing factor. The vasodilation which necessarily results from the sympathetic interference is but a secondary consideration in each sign. The anatomic variances in the conjunctival fascia is at no time a direct etiologic factor. Each one of the signs can be intrinsically modified by the absence or presence of an anatomic lesion.

Finally all of the lid signs are dependent upon a stimulation of the sympathetic nerve fibers and the palpebral muscles supplied by them; in addition, there is a directly increased muscle tonus. This view is further substantiated by the fact that a paralysis of the sympathetic produces almost the exactly opposite train of lid symptoms. Above all, it is more than passing strange that the iris seldom is involved, though the fibers are so profoundly implicated. Lastly, the writer stated that literature references are rather abundant to sustain the contentions made, and that his personal observations are in accord with these facts.

Dr. Wm. Wilder said that many years ago he noted a sign not described in text-books, which was confirmed by consulting neurologists, and he has also seen the same sign since in cases of exophthalmic goiter. If the patient is asked to follow the finger which is moved steadily through a certain arc, the eye does not follow the finger evenly and steadily, but in a jerking manner. It is not an invariable symptom and does not always speak for exophthalmic goiter, but it was found other lid symptoms were not present. He thought with Dr. Suker that probably all these symptoms are due to hypertonicity of the muscles. The sign was also found in cases of a lateral spinal sclerosis, multiple sclerosis, and might be compared with the voluntary tremor of the latter condition.

Dr. Suker has also observed this sign in one or two cases and is convinced that the entire group of symptoms is due to hypertonicity causing a stimulation of the sympathetic system.

STAPHYLOCOCCUS VACCINATION IN PHLYCTENULAR DISEASE.

Dr. Henry Gradle, on the assumption that the prolongation of the disease so often met with in the later attacks of phlyctenulæ might be due to secondary in-

vasion by staphylococci, quite commonly found, tried in such cases the injection of cultures killed by heat. He selected nine consecutive cases of protracted phlyctenular disease showing staphylococcus in smears which had proven rebellious to the usual treatment. In every instance improvement began at least after the second injection at intervals of one week. In two and one-half to four weeks all irritation had disappeared. While a similar gradual recovery might have occurred in any one case with staphylococcus vaccination it could not have been expected with such regularity in a whole series of cases previously rebellious to customary treatment. Since staphylococci are not the original cause of phlyctenula, this treatment does not protect against a later reappearance of the disease. The most striking observation was that of a very low degree of superficial keratitis (post-phlyctenular) which had persisted for a year and had not yielded to previous appropriate treatment. The disease disappeared completely after four vaccinations.

Dr. W. A. Mann has used the staphylococcus vaccine in four cases in which other methods of treatment had not sufficed to effect a cure. One case was traumatic ulcer, another an ulcer dependent on rheumatic etiology, and two cases were associated with acne. These were seen in the later stages of the disease, when the ulcers had almost healed and the injections of the vaccine were given to prevent a recurrence of the ulcer and to cure the acne. The result in each instance was most favorable. He has also used a streptococcus vaccine in cases of iritis of the so-called rheumatic variety with good results.

Dr. W. F. Coleman had one case of severe relapsing phlyctenular keratitis in a child 12 years old, which he treated by the usual methods for six months, and while the patient improved somewhat she never completely recovered. For three months he used the incandescent lamp with good results, although no impression was made on the course of the disease. Finally he resorted to the use of the x-ray and, although the cornea was covered for three-quarters of its surface with ulceration, in less than ten days nine-tenths of the opacity had disappeared. The treatment was continued for eighteen months, and now the child has nearly normal vision and there has not been any relapse.

WILLIS O. NANCE, Secretary.

FULTON COUNTY.

The twelfth annual meeting of the Fulton County Medical Society was held in the Canton Chautauqua Grounds, Oct. 5, 1909. Called to order at 10:30 a. m. by President Cluts. The minutes of the May and July meetings were read and adopted. The president appointed Drs. Scholes and Price as an auditing committee, who reported that they had examined the books of the treasurer and found them correct. The treasurer's report was read and adopted. The following officers were elected: President, Dr. F. C. Robb, Farmington; vice-president, Dr. J. E. Coleman, Canton; second vice-president, Dr. Veda C. Murphy, Cuba; secretary-treasurer, Dr. D. S. Ray, Cuba; necrologist, Dr. P. H. Stoops, Ipava; membership committee, Dr. Price, Astoria; board of censors, Dr. Harrod, Avon; delegate to state meeting, Dr. D. S. Ray, Cuba; legislative committee, Dr. W. E. Shallenberger, Canton. Pursuant to notice given at the May meeting, Dr. Chapin offered the following resolution and moved its adoption:

Resolved, That the resolution adopted at the December (1907) meeting, amending Section 7, Article 5, of the constitution, relative to contract practice, be and is hereby rescinded.

The motion, being seconded by Dr. Robb, was carried. Dr. Shallenberger moved that the rule relative to holding applications over one meeting be temporarily suspended and that all new applications be voted on at this meeting. Carried. A majority of the membership committee not being present the president appointed Dr. Hayes as a member of that committee pro tem.

Dinner was served by Mr. Middlekanff. After dinner Dr. M. L. Harris read a paper on the "Early Diagnosis of Cancer of the Uterus." Dr. Harris' paper was discussed by Drs. Percy, of Galesburg, and Robb, of Farmington. Dr. Black, of

Jacksonville, presented a paper on "The Progress of Surgery." Dr. Percy presented a paper on "Some Items of Interest to the Physician Outside of Medicine." Dr. Shallenberger gave a talk on legislative matters. Dr. Becker, of Knoxville, gave a very interesting talk encouraging physicians to take more interest in politics. Unanimous thanks were voted Drs. Black, Percy and Becker for their presence; to the management of the Electric Interurban Railroad for the free transportation to and from the grounds; to the officers of the Chautauqua association for the use of the grounds and buildings, and to Mr. and Mrs. Middlekauff for the palatable dinner and refreshments served.

The membership committee favorably reported on the following applications, and on motion the secretary cast the vote of the members present for their election: Drs. W. D. Nelson, Bryant; R. E. Wasson, Vernon; C. G. Turner, Brereton; C. E. Hershman, London Mills; P. F. Jones, Table Grove; E. K. Dimmitt, Farmington; C. R. Essix, London Mills; D. A. Blair, Ellisville; D. W. Bottorf, Astoria; Dr. Hamilton, Vermont, J. M. Adams, Canton. The following is a partial list of those present:

I. L. Beaty, Fairview.	J. W. Connelly, Farmington.
J. M. Nellis, Canton.	Veda C. Murphy, Cuba.
W. D. Nelson, Jr., Canton.	Jennie W. Parks, Fiatt.
F. C. Robb, Farmington.	W. T. Zeigler, Canton.
D. W. Bottorf, Astoria.	L. R. Chapin, Canton.
W. D. Nelson, Sr., Canton.	E. W. Reagin, Canton.
D. A. Blair, Ellisville.	E. S. Parker, Vermont.
D. D. Kirby, Canton.	R. G. Richards, St. Davids.
G. C. Black, Table Grove.	R. T. Ewan, Smithfield.
E. R. Essix, London Mills.	C. M. Wilmott, Fiatt.
J. M. Allison, Canton.	W. R. Blackburn, Breeds.
J. E. Sutton, Canton.	C. E. Howard, Lewistown.
J. S. Barton, Cuba.	E. G. Davis, Lewistown.
S. B. Beers, Fairview.	C. G. Turner, Brereton.
J. P. Long, Astoria.	C. H. Hamilton, Vermont.
A. R. Fowser, Canton.	R. G. Grimes, Marietta.
F. M. Harrison, Bryant.	H. H. Rogers, Cuba.
G. W. Newberry, Smithfield.	Maud T. Rogers, Cuba.
A. J. Baxter, Astoria.	W. M. Roberts, St. Davids.
E. K. Dimmitt, Farmington.	C. N. Allison, Canton.
P. H. Jones, Table Grove.	P. S. Scholes, Canton.
C. E. Hershman, London Mills.	D. S. Ray, Cuba.
L. V. Boynton and wife, Vermont.	Ben. Taylor, Vermont.
R. E. Wasson and wife, Fairview.	Chas. McCurdy, Vermont.
S. S. Clayberg, Avon.	J. E. Coleman, Canton.
T. R. Plumer, Farmington.	C. E. Black, Jacksonville.
Elden Price, Astoria.	J. F. Percy, Galesburg.
E. E. Davis, Avon.	Tonis Becker, Knoxville.
R. W. Harrod, Avon.	E. W. Ryerson, Chicago.
P. B. Goodwin, Summum.	M. L. Harris, Chicago.

MACON COUNTY.

The Deatur Medical Society met Tuesday evening, Sept. 21, 1909, in the offices of Drs. Parrish and Pollock, Deatur. A phonograph and lantern slide exhibition of the Chicago Tuberculosis Institute was given. This was followed by a paper on "Union of Medical and Public Libraries," by Dr. Ellen F. Grimes, member of the Deatur Library Board. A special meeting of the committee on permanent quarters for the society was held. The following are the officers for 1909-1910: President, J. T. Miller, M.D.; vice-president, J. C. Fisher, M.D.; secretary-treasurer, C.

E. McClelland, all of Decatur. Censors: C. M. Wood, M.D.; O. Yarnell, M.D., and Ellen F. Grimes, M.D. Program committee, Drs. C. E. McClelland, F. M. Anderson, Lynn Barnes and W. W. Fitzpatrick. Medical ethics committee, Drs. H. C. Jones and M. P. Parrish, of Decatur, and Dr. J. H. McNutt, of Hammond.

RANDOLPH COUNTY.

The Randolph County Medical Society met September 7 in the Randolph clubrooms at the Broadway Hotel, Sparta, Ill. Chairman H. L. Gault called the meeting to order. The minutes of the last meeting were read and approved. The following members were present: Drs. Gault, Steele, McKee, Seeley, Ritchey, Le Saulnear, J. W. Robertson, Weir and Brandts; visiting physicians, President J. L. Wiggins, of the Illinois Medical Society, Drs. Weyle and Stephenson. Wm. F. Hager, of Sparta, was an applicant for membership and was accepted by a vote of members present. Dr. H. L. Gault, chairman, gave a short address of welcome. Secretary A. D. Steele made a short report on his visit to the Illinois Medical Society meeting, held in Quincy, May 18 to 20. J. W. Robertson, of Coulterville, reported a peculiar case of supposed enterocolitis. The patient was a woman, aged 23, who died about thirty-six hours after his first visit. A discussion followed by Drs. Le Saulnear, Gault and Steele. The meeting adjourned for dinner, which was given by the resident physicians to all visitors, and a very enjoyable time was spent. At 1:30 o'clock the meeting was called to order. Dr. McKee, for the clinic, presented a colored woman with an aneurism of the common carotid artery. She was examined with interest by all present. Surgical treatment was discussed by Drs. Gault, Robertson and Wiggins. R. M. Ritchey, assistant physician at the Southern Illinois Criminal Insane Asylum at Menard read an interesting paper on "Mental Instability." This paper was praised very highly by Drs. Wiggins and Gault, who applied the rule especially to school children.

A resolution was presented for a vote of thanks to each of the Representatives who voted against the Osteopath Bill, which was defeated in the last General Assembly. Also a letter to be sent to our state senator denouncing his action for voting in favor of the same bill. A vote of thanks was tendered our worthy president, J. L. Wiggins, for the able paper he read on "Medical Organization, Past and Present." A vote of thanks to the members of the Randolph Club and to all the physicians of Sparta for the hospitality shown the society at this meeting was tendered. The meeting adjourned to meet the second Tuesday in May at Prairie du Rocher, the home town of Dr. Brandts.

A. D. STEELE, Secretary.

ILLINOIS MEDICAL COLLEGE UNDER NEW AFFILIATION.

According to recent items in the daily press, it appears that the Illinois Medical College has become a part of the Loyola University, which has been expanded, and includes a law school, an engineering school, colleges, etc.

It would hardly seem necessary to have so many medical colleges in Chicago, but, if it is, it is gratifying to know that this particular college will hereafter be conducted under such good auspices.

The Catholic church the world over has been devoted, as far as medicine is concerned, to the highest ideals, and we trust and believe there will be no departure from these ideals in the medical school now adopted as a part of the new university.

NEWS OF THE STATE

PERSONAL.

Dr. O. L. Pelton, Jr., Elgin, has gone to Europe for a year's study.

Dr. and Mrs. Bernard Fantus, Chicago, have returned from Europe.

Dr. Otto R. Scott, Chrisman, who has been critically ill, is reported to be improving.

Dr. Albert J. Roberts, Ottawa, has been re-elected physician of LaSalle County.

Dr. Emory W. Goembel, Rockford, has been appointed physician of Winnebago County.

Dr. Walter S. Eshbaugh, Marengo, has been appointed deputy coroner of McHenry County.

Dr. C. L. Spicer, Springfield, was elected national medical examiner of the Yeomen of America.

Dr. Robert H. Gault has been appointed instructor in psychology in Northwestern University.

Dr. Wm. W. Meloy, Chicago, was operated on for appendicitis at Passavant Hospital September 19.

Drs. E. Fletcher Ingals, George E. Shambaugh and W. E. Buehler, Chicago, have returned from Europe.

Dr. Otto L. Schmidt, Chicago, has been appointed by the governor a trustee of the Illinois State Historical Library.

Dr. Karl F. Snyder, Freeport, has succeeded Dr. J. F. Fair, resigned, as local surgeon to the Illinois Central Railroad.

Dr. Walter W. Hamburger, Dr. and Mrs. Cassius C. Rogers and Dr. Henry Gradle, Chicago, have returned from Europe.

Drs. G. F. Fiske, L. L. McArthur, A. D. Bevan, John B. Murphy and G. Paull Marquis, Chicago, have returned from Europe.

Dr. Benjamin J. Nauman, Peru, George W. Boot, Evanston, and William B. Peck, Freeport, have returned from Europe.

Dr. Frank H. Blackmarr will hereafter devote his entire attention to office and hospital practice of electro-therapeutics, Suite 735-737 Marshall Field Building.

James B. Gooken, S.B., who was offered an appointment as chemist for the State Pure Food Commission, has decided to remain with the Chicago city laboratories as chemist.

Dr. Elmer L. Kenyon, Chicago, by invitation, led the discussion on stammering at the annual meeting of the Pennsylvania State Medical Society, held in Philadelphia in September.

NEWS.

—By the will of Lawrence McMahon of Urbana, St. Elizabeth's Hospital, Danville, receives a bequest of \$700.

—The Civic Federation, Chicago, announces its intention of actively undertaking a campaign against illegal medical schools and "diploma mills."

—Ground was broken October 10 for the new addition to the Norwegian Lutheran Deaconess' Home and Hospital, which is to cost \$75,000 and which is expected to be completed next spring.

—A reception was given October 4 by the Physicians' Club of Canton to the Graham sisters, who donated the Graham Hospital to Canton, and the public reception and opening was held on the following day.

—It is reported that Mrs. Leopoldine Boyd has filed a bill for divorce against her husband, Dr. Benjamin Y. Boyd, a Chicago physician, alleging that he had deserted the complainant and was living with another woman.

—Sarah E. Wood, Rock Island, charged, on complaint of the State Board of Health, with practicing medicine without a license and selling drugs and ointments, is said to have been found guilty October 6 and fined \$100 and costs. An appeal was taken.

—College students have always had plenty of excuses for flunking, but few as convincing as the 30 per cent. of students at the University of Georgia said to be afflicted with uncinariasis. It affects the scores both within the class room and on the athletic field.

—The fight over the railroad smoke nuisance in Chicago promises to be a Homeric battle. With the city administration reinforced by all the women's clubs in solid phalanx, what will happen to the offenders ultimately is as easy to perceive as the smoke is now.

—The annual class day rush at the College of Physicians and Surgeons in Chicago was so hotly contested that it led to a riot call, caused a blockade of street cars, and was participated in by the fire department. No one was killed, but several required surgical attention.

—The governor has appointed the following committee to investigate pellagra: Drs. Frank Billings, George W. Webster, Howard T. Ricketts and Oliver S. Ormsby, Chicago; Dr. James L. Greene, Springfield; Dr. H. Douglas Singer, Kankakee; Drs. Harris S. Grindley and Ward J. McNeil, Urbana.

—Dr. J. P. Deckard, of Paradise, Coles County, shot and killed Ralph F. Webster, his neighbor, Oct. 26, 1909, and afterward surrendered himself to the authorities at Mattoon. The unfortunate fatality was the result of a quarrel over the depredations committed on Dr. Deckard's property by hogs owned by Webster.

—More than two hundred patients at the Dunning Tuberculosis Hospital were removed to the new hospital on the grounds of the County Hospital last month. The hospital has recently been completed at a cost of \$150,000, and it is proposed to move there all the far-advanced patients, retaining the more hopeful cases in the institution at Dunning.

—Dr. Emma Hellwig, said to be a former physician of Chicago, was sentenced, in the Superior Court of Berlin, to pay a fine on a charge of illegally assuming the title of doctor. The court declared that she was entitled to describe herself as an American physician, but that she had no right to use the title doctor of medicine, not having the required university degree.

—At the semi-annual meeting June 29, the State Board of Health declared the St. Louis College of Physicians and Surgeons a medical institution not in "good standing," to date from July 1, 1909; conditioned Barnes University, St. Louis, and declined to restore recognition to the National Medical University of Chicago, which had been declared not in "good standing" a few months before.

—Dr. E. H. Ochsner's buggy was overturned by a speeding auto and the Doctor and his coachman were thrown out and painfully bruised while on the way to a meeting of the Chicago Medical Society October 20. Dr. Ochsner seized the occupant of the auto and held him until a policeman arrived. The party then went to the Hudson Avenue station, where the Doctor signed a complaint of disorderly conduct.

—Rev. Caroline Bartlett Crane, Kalamazoo, at the meeting of the American Public Health Association last month, attacked the government system of meat inspection, and accused the officials of issuing instructions to ignore the inspection rules. The executive committee refused to appoint an investigating committee, as they did not consider that her statements or documents substantiated her charges.

—Financial control of the Post-Graduate Medical School and Hospital of Chicago, which has been held by Dr. Franklin H. Martin since its organization in 1888, has been sold to Dr. William Baum, a member of the board of directors for fifteen years and for several years treasurer of the institution. Dr. Emil Ries has been elected secretary, vice Dr. Franklin H. Martin, resigned, and Dr. Otto J. Stein a director, vice Dr. Frederick A. Besley, resigned.

—Albert H. Squires, a cripple, was arrested on complaint of Dr. A. A. Hermann, South Chicago, October 15, on a charge of obtaining money by false pretense. He claimed to be the Chicago agent for the Health and Accident Insurance Company of Toledo, Ohio. Dr. Hermann recognized him as the man who had previously swindled him on a similar proposition in Newark, Ohio. Squires' address for the next few months will be the House of Correction.

—Concerning the prevalence of hookworm disease in the south, the current *Journal of the American Medical Association* notes the general lack of privies on the farms and the resulting pollution of the soil. The daily papers announce a gift of \$1,000,000 by John D. Rockefeller for the eradication of the parasite. Part of the money might be used to build and endow the lowly adjuncts to civilized society and a larger part to hire the crackers to use them.

—The following will constitute the committee from Illinois delegated to attend the Conference on Pellagra, to be held at the State Hospital for the Insane, Columbia, S. C., November 3 and 4: Dr. James A. Egan,

Springfield, secretary of the Illinois State Board of Health, chairman; Drs. George W. Webster, Frank Billings and Walter H. Buhlig, Chicago; Dr. John T. McAnally, Carbondale; Dr. H. Douglas Singer, Hospital, and Dr. George A. Zeller, South Bartonville.

—The Winnebago County Medical Society, at the meeting September 14, was entertained by Dr. S. R. Catlin in a travelog, describing his experiences in a trip to London. The hospitals and sanitary conditions of London were described, and some of the old coffee houses frequented by Drs. Johnson and Goldsmith and other literary lights found in him a sympathetic visitor. The furniture of these old inns is much the same as in Dr. Johnson's time, although the kitchen equipments are improved with modern sanitary arrangements.

—The case of Dr. Byron Robinson vs. Dr. Clara P. Seippel was dismissed from the Superior Court of Cook County on October 11, with judgment for costs against the plaintiff. The precipe was filed in June, but the plaintiff failed to file his declaration when the time came. The basis of the suit was a letter written by the twenty-six physicians on the attending staff of the Mary Thompson Hospital to the managers and trustees of the institution, and the plaintiff took the first step toward beginning a suit for libel in the sum of \$25,000 against one of the staff.

—Last month a correspondent of a Chicago paper reported that he saw at least twenty rats running across the table and floor in the dining room of the Elgin Hospital for the Insane. This sensational statement has been denied by Dr. Podstata, who noted as a peculiar coincidence that the institution had been visited a week before by a man who insisted on selling a rat exterminator and was indignant when refused. Dr. Podstata admits that there are some rats in the institution and that a parole patient is engaged with traps in exterminating them. He denies, however, that they infest the dining room.

—It is reported that a suit was filed in court by Dr. J. M. Weiss, who seeks to enjoin Dr. H. W. Johnson from practicing within ten miles of Port Byron until 1916 and to compel the defendant to pay over to him the profits he has earned from practicing there since July, 1909. According to the bill, the defendant sold his practice to Oscar S. Dailey on Oct. 11, 1906, agreeing not to locate in that territory within ten years. Dr. Dailey practiced until Nov. 1, 1908, when he sold his practice to the plaintiff with much the same stipulations. In July last the defendant is alleged to have practiced in the forbidden territory.

—The Twin City Branch of the American Health League met in Champaign October 14 to discuss diphtheria. Dr. S. W. Shurtz, city physician of Champaign, spoke on the topic, "Prevention of Diphtheria and Disinfection." Dr. A. S. Wall discussed "Chemical Diagnosis and Treatment of Diphtheria." Professor Briscoe, Dean Burrill, Dr. McNeil and Professor Curtis, all of the University of Illinois, took part in the discussion. The league resolved that disinfection of infected premises should be done by the city authorities. As it is for the public good it should be a public charge, and the work should be under the authority of the department of health.

PUBLIC HEALTH.

—One of the Chicago papers advises keeping the city laboratory open at all hours, night and day.

—The Board of Health of Rock Island has inaugurated a crusade against expectoration with a fine of \$5 for expectorators.

—The Occupational Disease Commission announces that a publicity campaign will be inaugurated with the cooperation of the state officials and medical experts. The scope of this work will include hints for workers and employers in every occupation of injurious nature, extending to household occupations.

—Frederick O. Tonnev, A.B., M.D., has been appointed director of the Chicago city laboratories to succeed Dr. J. Favil Biehn. Dr. Tonnev was appointed assistant city chemist June 5, 1906, and was promoted to the position of chemist Jan. 1, 1909. In the civil service examination for his present position he passed at the head of five competitors.

—A number of mild cases of typhoid fever in Elgin this fall led the health authorities there to insist on the reporting of cases by the physicians under the authority of the ordinance governing contagious and infectious diseases. Investigation located several suspicious wells and one milk supply said to contain the *Bacillus typhosus*. Samples of the city water have been reported uniformly good.

—After November 15 the Chicago Department of Health will not accept certificates of tuberculin testing of cows in the state except from veterinarians regularly deputized by the state veterinarian. The deputies must report all tests yielding positive as well as negative results. It is the intention of the state to brand all animals giving a positive reaction by punching the letter "T" in the right ear. This will prevent the traffic in tubercular animals.

—The State Fair had two exhibits of special interest to the medical profession: The Pure Food Commission demonstrated how to avoid adulterated and poisoned food. The State Board of Health had a special exhibition in a campaign against tuberculosis. A striking feature was a handsome clock with a placard, "Every time this clock strikes the hour some one in Illinois dies with consumption; one every hour, twenty-four every day, seven hundred and fifty every month, nine thousand every year." A map was shown containing 20 states having adequate appropriations for state sanatoria for consumptives. Illinois was not on this honor list.

—The death of Dr. Cesare Lombroso October 18 last ends the career of one of the greatest students in criminology in the history of medicine. His attention was first directed to the subject by noticing certain abnormalities of the skull while dissecting a soldier executed for killing an officer. The idea of degeneracy developed with his studies into a theory of crime. An entirely new school of criminology has developed from the anthropometric rules he laid down. The treatment of the defective criminal may be in time modified as much by Lombroso's theories as was

the treatment of the insane by the humanitarian impulses of Pinel of Paris, of Wm. Tuke of England, and of Dr. Benjamin Rush of Philadelphia.

—The *Bulletin* of the Illinois State Board of Health for June (issued in October) contains the complete vital statistics for the year 1908, showing a decrease of 2,409 deaths in the year, as compared with 1907. The editorial comments on the comparative incompleteness of the returns from the "non-registration" parts of the state and the need of an effective vital statistics law should appeal to every physician in the state. Births are reported even less fully than deaths. County officials who fail to appropriate funds to pay for the reports are to a degree responsible for the lack of interest among members of the medical profession. W. F. Bodine, superintendent of compulsory education in Chicago, commenting on the condition, said: "Chicago gets a full count on coffins but not on cradles. It's a queer condition of affairs when a child has to die in order that it be officially recorded for the first time that it has been alive."

—Bulletins of the Chicago Department of Health show a reduction in the death rate of 4.3 per cent. for the first nine months of this year as compared with the same months of 1908. There were 51 fewer deaths from typhoid fever, 69 fewer from tuberculosis and 100 fewer from acute intestinal disorders, including "convulsions." An increased mortality is noted from heart diseases, Bright's disease, diphtheria, cancer and violence. The three chief acute impure-air diseases, pneumonia, bronchitis and influenza, show a very slight increase, 3,872, as against 3,840. An increase of the deaths from pneumonia early in October caused the department to repeat its warning against shutting up the houses tight on the approach of chilly or cold weather. "The thing to do is to stop lowering your resisting power. Quit poisoning yourself with foul air. Breathe good, pure air all the time, especially while sleeping. Keep your windows open day and night. Don't be afraid of cold air. Pure cold air does not cause pneumonia. It's dirty, foul air that causes pneumonia."

—Acting Assistant Surgeon Moorer of the Public Health and Marine-Hospital Service reports in the *Bulletin* of October 15 as follows: "During the past five years there have been six cases of pellagra under my observation at the Georgetown, S. C., Infirmary. Four of these cases came from the county chain gang. I mistook the first case for Addison's disease, but noticed instead of pigmentation in mouth and fauces a raw and bleeding surface. Then the bronzed skin peeled, leaving raw surfaces. The bronzing of the skin appeared on the dorsal surfaces of arms and backs, and especially the neck. There were intense intestinal and trophic disturbances, and anorexia and lassitude connected with all the cases. Only one became so deranged mentally as to require treatment at the insane asylum. The majority of cases were in persons of negro race between the ages of 20 and 40 years. The treatment employed in these cases was: Strychnin, arsenic, and the tincture of iron in large and

increasing doses, and a strict dietary of from 2 to 3 quarts of milk, with from 8 to 10 raw eggs a day. Five of the cases have completely recovered. The fate of the sixth case, which was sent to the state asylum for the insane, is unknown to me."

NEW INCORPORATIONS.

—Bernard Macfadden Healthatorium; \$2,500; operate sanitarium; B. F. Langworthy, J. P. Graham, C. M. Gibler.

—Central Health Institute; \$2,500; conduct hospitals and deals in drugs and surgical appliances; M. M. Livingston, M.D., Edith B. Lowry, O. A. Livingston, R. J. Lambert.

REMOVALS.

Dr. R. O. Early has removed from Galesburg to Albia, Va.

Dr. H. D. Roshget has removed from Gibson City to Galva, Ill.

Dr. F. W. Kerchner has removed from Belleville to Glen Carbon, Ill.

Dr. A. L. Collins has removed from Milmine, Ill., to Long Creek, Ill.

Dr. S. F. Brownfield has removed from Galesburg to Brookfield, Mo.

Dr. A. G. Brubaker has removed from Mt. Morris, Ill., to Burlington, Ind.

Dr. Nellie C. Flint has removed from Geneseo, Ill., to Jennings, La., L. B. 642.

Dr. A. W. Moore has removed from Bristol, Kendall County, to Sugar Grove, Ill.

Dr. F. H. Powers has removed from Champaign, Ill., to 4012 Sheridan Road, Chicago.

Dr. H. H. Hanly has removed from Havana to 3001 Calumet Avenue, Flat 3, Chicago, Ill.

Dr. George E. Southwick, of Beamington, Sangamon County, has removed to Chatham.

Dr. C. J. Smith has removed from Kankakee to 1200 Greenwood Avenue, Wilmette, Ill.

Dr. C. F. Ely has removed from 1510 Dearborn Avenue to 34 Washington Street, Chicago.

Dr. Edmund A. Boas has removed from 1154 Wells Street to 1205 LaSalle Avenue, Chicago.

Dr. J. Frank Friesen has removed from 162 West North Avenue, Chicago, to Buhler, Kans.

Dr. G. W. Boot has removed from 1948 Sherman Avenue to 800 Davis Street, Evanston, Ill.

Dr. H. L. Barnes has removed from 1314 South Fifth Avenue, Maywood, Ill., to Pewaukee, Wis.

Dr. Harry Kohn has removed from 3425 South Park Avenue to 5322 South Park Avenue, Chicago.

Dr. Richard M. Fletcher has removed from 609 Rush Street, Chicago, to Deerpath Inn, Lake Forest, Ill.

Dr. Emma C. Hackett has removed from 1700 Broadway, New York City, to "Waupell Lodge," Dubuque, Iowa.

Dr. C. C. Atherton has removed from 1201 Terminal Station, South Bartonville, to 59 Warren Avenue, Chicago, Ill.

Dr. S. Lewin has removed from 6501 Howard Avenue to Vendome Hotel, Sixty-second Street and Monroe Avenue, Chicago.

MARRIAGES.

RUTH VAIL, M.D., and Albert Taylor Snow, both of Chicago, September 7.

ELIJAH C. TROUT, M.D., to Miss Vernice L. Petty, both of Birds, Ill., September 8.

GEORGE HENRY SCHROEDER, M.D., to Miss Elsa Niemeyer, both of Chicago, September 18.

ALFRED NICHOLAS MURRAY, M.D., to Miss Edna Aurette Schmidt, both of Chicago, September 30.

WILLIAM JAMES SWIFT, M.D., of Chicago, to Miss Florence Josephine Lang, of Berlin, Ont., October 6.

HERMAN WINFORD BUNDY, M.D., of Sadorus, Ill., to Miss Edith Stone of Tolono, Ill., September 29.

EDWARD E. NATHAN, M.D., Chicago, to Miss Julia Goldberg, of Deadwood, S. D., in Chicago October 1.

VICTOR MACKAY DALY, M.D., to Miss Violette Berry Helm, both of Pontiac, at St. Paul, Minn., September 8.

BYRON G. R. WILLIAMS, M.D., Paris, Ill., to Miss Margaret Elizabeth Mahoney, of Lexington, Ky., September 8.

GEORGE STANBERRY WALKER, M.D., to Miss Mabel Robinson, both of DeLand, Ill., at Bloomington, Ill., September 15.

DEATHS.

ROY WELCH, M.D. St. Louis University, 1907; died at his home in Lincoln, Ill., from malignant endocarditis, September 7, aged 30.

ALFRED ERNEST PLEAVIN, M.D. Bennett Medical College, Chicago, 1906; died at his home in Elgin, Ill., September 22, from acute meningitis, aged 29.

ERNEST CLARK GWINN, M.D. College of Physicians and Surgeons, Chicago, 1906; formerly of Sadorus and Paris, Ill.; died in Monrovia, Cal., from pulmonary tuberculosis, September 9, aged 28.

RILEY S. LYCAN, M.D. Homeopathic Hospital College, Cleveland, Ohio, 1880; a member of the Illinois State Medical Society; died at his home in Paris, October 2, from pulmonary tuberculosis, aged 54.

W. L. FLEMING, M.D., Shelbyville, died Oct. 10, 1909, aged 75. Dr. Fleming graduated at the Missouri Medical College in 1869 and had practiced in Shelby County ever since. The cause of death was tuberculosis.

HENRY ZIESING, M.D. University of Giessen, Germany, 1851; Illinois Army Board, 1865; a surgeon of volunteers during the Civil War; for many years a practitioner at Peru, Ill.; died at his home in that city, September 11, aged 80, from paralysis.

HENRY A. EIDSON, M.D. Rush Medical College, Chicago, 1880; a member of the Illinois State Medical Society and of the local board of the U. S. pension examining surgeons; died suddenly while making a professional call at his home in Willow Hill, October 7, aged 62, from hemorrhage.

CHARLES HORACE EVANS, M.D. Homeopathic Medical College of Pennsylvania, Philadelphia, 1869; of Chicago; from 1897 to 1904 lecturer on materia medica in Hahnemann Medical College; died in Union Hospital, Chicago, October 4, after an operation for carcinoma of the stomach, aged 62.

JOSEPH W. WASSALL, M.D. College of Physicians and Surgeons, Chicago, 1884; of Chicago; a member of the American Medical Association; for several years dentist to the Czar of Russia; was washed from the deck of a yacht in Lake Michigan, off Racine, Wis., September 18, and drowned, aged 51.

HOWELL EMOLYN DAVIES, M.D. Rush Medical College, Chicago, 1902; a member of the American Medical Association; fellow in bacteriology, University of Chicago, 1897-1900; and instructor in gynecology in his alma mater in 1902 and 1903; died at his home in Emporia, Kans., August 26, from typhoid fever, aged 38.

JOHN JOSEPH QUIRK, M.D. Rush Medical College, Chicago, 1888; a member of the American Medical Association; adjunct professor of skin and venereal diseases in the College of Physicians and Surgeons, Chicago, and the Chicago Clinical School; secretary of the local board of U. S. pension examining surgeons; died at his home in Chicago, October 4, aged 44.

EDWIN RUTHERFORD WILLARD, M.D. Rush Medical College, Chicago, 1852; of Joliet, Ill.; a member of the American Medical Association; consulting surgeon to St. Joseph's and Silver Cross hospitals, Joliet; surgeon of the Thirteenth Illinois Volunteer Cavalry during the Civil War; died at his old home in Wilmington, Ill., June 22, from nephritis, aged 79.

ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF
THE ILLINOIS STATE MEDICAL SOCIETY

ENTERED IN THE SPRINGFIELD POSTOFFICE AS SECOND-CLASS MATTER.

VOL. XVI SPRINGFIELD, ILL., DECEMBER, 1909 No. 6

ORIGINAL ARTICLES

THE RESPONSIBILITY OF THE STATE IN THE CARE OF ITS DEPENDENTS.*

FRANK BILLINGS, M.D.
CHICAGO.

By education and experience I am not competent to discuss the proper treatment of the insane and the mentally deficient or the proper care of those dependents who come under the general charities of the state. As a member of the State Board of Charities of the state during the last three years, my experience in that position has given me a general idea of the insane and mentally deficient, which will enable me to speak with some authority upon the modern treatment of these people.

My experience has taught me that a proper and just treatment of those mentally ill and mentally deficient should be based upon the broad lines which govern us in the care of the physically sick in their homes and in the general hospitals. In other words, the modern treatment of the insane and mentally deficient is based upon the fact that they are human beings and are as deserving of proper hospital care and nursing as the individuals who suffer from pneumonia, typhoid fever or any other of the physical diseases.

In the past, the state has recognized its insane and most of its mentally deficient like the feeble-minded, the epileptic, etc., as individuals without hope of improvement, and hence they have received custodial care. Little or no attempt was made until the last two or three years to cure the acute insane, to improve a certain number of chronic insane or to properly care for those who are unimprovable.

The modern treatment of the insane recognizes three classes: First, the acute insane. Second, the chronic insane who may be improved

* Read at the Fifty-ninth Annual Session of the Illinois State Medical Society, Quincy, Ill., May 18, 1909.

mentally and physically by proper management; and third, the chronic insane who are unimprovable and who become more and more demented until they die.

Of the *acute insane*, from 50 to 75 per cent. are curable, if a proper treatment is begun early enough. Therefore, it is incumbent upon the medical profession which comes first in contact with the mentally sick individual to promptly place the patient in an institution under proper environment. When possible a psychopathic hospital should be chosen where intelligent medical supervision and nursing may be instituted just as if the patient suffered from typhoid or from other acute fever. The continuous bath, or some form of hydrotherapy, has proved to be the best quieting agent for excited, acutely insane patients, while proper rest with attention to the excretions of the body and freedom from the annoyances which may have been factors in the production of the disease, will be helpful in restoring all classes of the acutely sick.

In Germany, such psychopathic hospitals exist in connection with practically every university. The acutely insane patients receive the same amount of attention, care and attempt to cure them as are expended in the care of those ill of pneumonia and other acute infectious disease. There, too, clinics in psychiatry are held which students are obliged to attend as they do other general clinics. Patients recover under such management. At the same time, it serves as a means to educate the medical students in the care and treatment of the insane, and, furthermore, to recognize insanity when they go out in practice. Every state hospital should have a psychopathic hospital with all of the apparatus, including that of hydrotherapy, with an efficient medical staff and school for nurses and opportunities for clinics in psychiatry.

In a city as large as Chicago, such hospitals should be maintained for the proper treatment of the many cases of insanity which occur in such a large population. Such a hospital would serve as a distributing point of those patients, who do not recover, to the other hospitals of the state.

The Illinois law of commitment of the insane now provides for commitment upon the voluntary application of the patient. In addition to that the law should be amended to permit of the confinement of a patient in such a psychopathic hospital, without formal commitment by the law, for a period of not less than thirty days. If after such a period the patient were not recovered, the usual lawful commitment could then be made. Such a measure would remove one of the chief reasons for the non-commitment of the insane patients in the onset of the disease, inasmuch as the notoriety of commitment would be saved in all patients who were capable of recovery within thirty days. Patients and friends soon would learn that there was no more disgrace in going to a psychopathic hospital than to a general hospital.

Of the *chronic insane*, many are improvable. The chief means of improving this class of patients is by manual employment. Such patients may be incapable of continuing intellectual effort, but the greater number of the improvable class are capable of very good work with their

hands. Farming has proved to be the best form of manual treatment, and it has been stated by those in authority that every institution for the insane should have one acre of farm land for each subject. Upon the farm, those able to do so may be employed for a proper number of hours in all sorts of agricultural work, including the planting and reaping of crops, the care of the stock, the erection of and repair of buildings, fences, etc. Such work under proper supervision affords diversion, helpful exercise, good air and, in addition, the patient becomes partially self-supporting; by his work he secures good food from the garden, the farm and dairy.

In addition to this, such patients may be employed in manual work in the various shops about such an institution where the making and repair of shoes, clothing, the building of roads, repair of roads, etc., are necessary parts of institutional activity. The one prohibition I would see to the work of such patients would be that no dangerous machinery should be used such as is employed in factories in the making of clothing, boots, etc., for fear of personal injury. Besides, the purpose of the employment of such people is to improve them by manual training and employment, rather than to consider the value of the products which they turn out. Such improvable chronic insane patients need proper housing, proper bathing facilities, good wholesome food of a mixed character and the kindly care of attendants who may helpfully guide them in their work.

Proper means of amusement must be maintained for the diversion of the insane in the form of grounds for games of ball, croquet, etc., and halls for dancing, theatricals, music, etc. The nurses and attendants of all of the state institutions should have cottage homes separated from the patients, and they also should have rooms or a building set apart as places of amusement and recreation. Not until the state recognizes that it must afford opportunity for the enjoyment of the ordinary pleasures of mankind for its employees, will it secure proper nurses and attendants who will have every inducement to be kind, considerate and careful in their treatment of the sick, and at the same time will be induced to remain in the service of the state.

For the unimprovable chronic insane who daily grow more and more demented, custodial care alone can be carried out. This must be done in properly constructed buildings, which will afford them safety from risk of life or limb by fire or other accident and which will also maintain them in proper bodily comfort with good beds, selected simple food and good, kindly matronly attendants' care.

The state's responsibility for its dependent insane is, therefore, that it should maintain psychopathic hospitals, clinics in psychiatry, farms large enough with appropriate shops for the manual training of the improvable insane, with simple plain sanitary buildings for the housing of its patients and its employees.

Much depends upon the superintendent of any institution, probably more upon the superintendent of the hospital for the insane. He must be a man of broad mind, qualified for the place by education and experi-

ence. He must keep in touch with all the administrative work of his institution and, at the same time, should be a live factor in the question of the medical care, nursing and re-education of his patients. He must instill into his medical staff a proper spirit of investigation, of systematic case taking, daily examinations and scientific treatment of the patients, and, at the same time, maintain a proper *esprit du corps*. He must maintain a training school for nurses for those patients who require skilled nursing. He must maintain a school for attendants whose chief duty will be the proper guidance of the improvable class in their work and daily life, and of other attendants who shall give the kindest matronly care to those who are hopelessly insane. To aid the superintendent to keep his medical staff on a high grade, the state must maintain a psychopathic institute, or school, where members of the staff may go to be taught the newest methods of the treatment and management of the insane.

FEEBLE-MINDED AND EPILEPTIC.

The mentally deficient comprise a large number which may be brought under the two classes: the feeble-minded and the epileptic. The epileptic deficient are numerous. There is first an improvable class which experience has shown may be benefited and 10 per cent. or more cured, by proper care. This should be upon farms in colonies, and work similar to that outlined for the improvable chronic insane should be afforded them with proper housing, means of amusement, etc.

For the feeble-minded a like institution is necessary with the smallest possible factor of attempts at mental training by the use of books. As with the other improvable mentally deficient and insane, a proper manual training will do more to place these unfortunates in a self-supporting condition and at the same time improve their mental powers as much as may be done.

The insane epileptics and other hopelessly deficient epileptics should also be treated in colonies, but under custodial care. Such colonies may well be closely related with some existing hospital for the insane. Such a colony may be situated far enough away from the parent institution to prevent the disturbance of insane individuals by the convulsions of the epileptics and yet may be near enough to permit of the administration of the epileptic colony by the one institution. The buildings for the epileptics should be so constructed that the patients may do themselves the least possible injury when seized with convulsions.

Let me repeat for fear that I have not been understood, that the improvable epileptics should be colonized on a farm and should be afforded the proper manual training upon the farm and in shops which will improve their general physical condition and thus promote their cure. Such a colony should not be related to any other institution and should be far separated from the hospital for the insane. A colony for improvable epileptics should be small in population, but provided with ample land. For the unimprovable feeble-minded class, institutional, custodial

care which will afford them every bodily comfort and safety is all that can be done. I cannot take the time to speak to you of the responsibility of the state to its dependent blind, deaf, etc.

AWAKENING OF THE STATE.

From what I have said in the foregoing of the present conception of the best modern treatment for the insane and mentally deficient, you may infer that the State of Illinois has not in the past had a proper conception of its responsibilities.

Under the present administration during the last two and a half years, the principles of the modern treatment, as an attempt has been made to describe them in the foregoing, have been inaugurated in this state. The Quarterly Bulletin of the State Board of Charities of the last two and a half years contains in the various numbers the successive steps undertaken to bring about the conditions necessary for the modern treatment of our people. These steps are assembled as part of the nineteenth and part of the forthcoming twentieth biennial reports of the board.

The physicians and surgeons of Illinois have not in the past taken an active interest in the state charitable institutions. It is not necessary that I should attempt to make an argument that the medical profession of the state should be interested in these institutions. The patients and other dependents have been or will at some time be under the care of the various physicians of the state. The early recognition of insanity is necessary, if the individual is to have a chance for recovery quite as much as in tuberculosis. Our physicians, therefore, should be widely awake to the early recognition of mental disease.

A large majority of us never have had the experience of studying mental disease. The state should afford the doctors of the state an opportunity to learn of insanity through the maintenance of clinics in psychiatry in every state institution for the insane. Such clinics would be practically without cost to the state. The medical profession would have an opportunity to learn what insanity is, how to recognize it and how to treat it. Every patient so recognized early, if cured, would be a direct saving to the state.

Each of us should use his influence upon the members of the legislature to carry out the measures brought forward by the State Board of Charities for the improvement of the state's management of its dependents along modern lines, and should also demand of those in authority the establishment of clinics in psychiatry in every hospital for the insane in the state.

DISCUSSION.

Dr. C. W. Lillie, East St. Louis:—Mr. President: I suppose it is true that every doctor in the state receives the *Bulletin of the State Board of Charities*, and I suppose it is also true that a large percentage of them lay it away in a pigeon-hole or throw it into the waste-basket, and never look it over. I have been very much impressed by the last *Bulletin* of the board, and with the statements made therein. The system adopted recently for caring for the insane in the hospitals, those who were formerly in the almshouses, which the Board of Charities has done and is doing, with the exception of 365, as given in that report, shows

that the work is in the right direction, and any physician who has had access to one of the almshouses where the insane were cared for would see the fitness of this change.

I have had a good deal of experience in handling the insane and poor epileptics, etc., and I have found the difficulty in placing the epileptic anywhere has been so great that unless it is a child, which we can get into one of the state institutions, we are absolutely unable to find any place whatever for the epileptic. As Dr. Billings has suggested, ample provision should be made for the removal of those from the hospitals for the insane. It is only, as I believe, the indifference of physicians, and their neglect of their plain duty to urge measures before the legislature and to urge their representatives to put themselves right before the people, that delays action by that body. And when this matter is brought before us in a meeting of this society, the facts given by Dr. Billings should be disseminated throughout the state through *THE JOURNAL*, and when this is done the matter will probably meet with a better reception than it would through the *Bulletin of the Board of Charities*. I hope no person who attends meetings of medical societies will ever throw away such valuable pamphlets as these *Bulletins* are. I doubt very much if any of those present would do such a thing; but there are a large number of physicians in the state, many of them political physicians, who do not hesitate to throw such *Bulletins* into their waste-baskets when they contain matters of great interest, and it is to these we must appeal directly; they are the ones to be urged to insist upon action by the legislature. It is the politicians, and not the men who attend scientific meetings, as a rule, who are able to achieve results, notably the osteopathic measures, which are meeting with such a cordial response by such a large number of our legislators.

Dr. Frank H. Jenks, Elgin:—I want to personally thank Dr. Billings for the way he has presented this matter. He has mentioned that the feeling of the staff of physicians of the hospitals is that great indifference is manifested on the part of the general practitioner to the life and surroundings of the hospital physicians. I can appreciate that because I am on the other side of the board. I can personally vouch for the point that he has brought out, that there is greater interest in the subject by the hospital physicians on account of the establishment of a psychopathic school at Kankakee. We feel that the people are interested in us and through us in the wards of the state.

In regard to the complete care of the insane in the state by the state, I wish to say that the State Board of Charities has worked out a complete plan whereby the state is to assume charge of all the insane in the state, relieving the counties from the care of certain chronic cases, and the plan has been carried into execution in every particular except one. That one link in this chain is the important one. That one link is absent, and the State Board of Charities has not the power to replace it. They cannot provide room for patients without money. The law, which went into effect July, 1907, made it impossible to return cases to the counties from which they came (I refer to the chronic cases). It also provides that the institutions shall be enlarged to meet the increasing demands upon them. That presupposes increased appropriations to make room for these people. We have not those appropriations. What is the consequence. The acute cases are crowded in with those that belong to the class to which our attention has been called by Dr. Billings, and we are thereby hampered in the treatment of acute cases simply because we have not money enough to provide room for the chronic cases.

There is another thing I would like to mention, although it may not be germane to this discussion, but I wish to call the attention of the society to the fact that in some of these institutions we have been trying to create interest in the subject of insanity, particularly in the local medical societies, by giving clinics. You doubtless remember what a hubbub was created two or three years ago when we began giving clinics. They were stopped, and we felt that the brakes were put upon the wheels of progress by that thing. We had hoped by

those clinics to create an interest in the subject of insanity and make the general practitioner more familiar with it, and through him give back to the people a little more for their money than they had been receiving.

Dr. Frank P. Norbury, Jacksonville:—Mr. Chairman: I am sorry that I did not hear the full paper of Dr. Billings, but I feel that I would not be doing my full duty if I did not lend my endorsement to all of the good and constructive work the Illinois State Board of Charities has done and is doing. For one who comes in contact with the clinical side of mental disease, both privately and publicly (the latter in our state hospitals) to refrain from expressing appreciation of the wholesome advancement being made in our state, he is failing in his civic duty to say nothing of his lack of appreciation of what this all means to the confidence being created in State Service in Psychiatry. The progress in state institutions is largely along clinical lines, and by this expression I mean all that contributes to the betterment in treatment and care of the mentally afflicted. It is the duty of the medical profession to become interested in this progress and each member of this society should avail himself of every opportunity to acquaint himself with this improved service. Especially should the profession become familiar with modern methods of treatment of acute mental disease; first, their housing, segregation, individual treatment by rest methods, hydrotherapy, occupation methods, recreation and educational means; and second, but to me the greatest in its ultimate purpose, the encouragement of prompt and early first-aid treatment, by opening the doors more readily to the incipient and borderline mental conditions.

Illinois will soon be able to offer comparisons in state service with that of any other state. Comparisons now show that we are not very far behind. We have started right, thanks to the broad policies of the State Board of Charities; but, to keep on, we need the value of the potential powers of the organized medical profession, which rightly should be back of the state service in carrying on new and constructive work. New York is doing a great work because of the systematic and thorough organization of its clinical work. Maryland is organizing, through the help and cooperation of Dr. Adolph Meyer, who is to be the head of the psychiatric clinic at Johns Hopkins. Dr. Meyer, originally an unappreciated worker in Illinois, found his field ready for him in New York; he made good and now goes to Maryland to develop the first university clinic in this country and to start Maryland right in her fundamentals of organization.

The time will come when medical schools in the West will have organized clinics, conducted along medico-psychologic lines. This suggests the fact that academic training must precede the medical course, if the benefits to accrue to clinical medicine are to go beyond our present incomplete training, and it is for our state to say, through its organizations, what that training shall be.

We need more such practical discussions as Dr. Billings has given us. These discussions should come from the profession, from the superintendents, the physicians concerned in state work. They ought to be here as active members of this society, to lead us in these subjects. We are so engrossed with internal medicine, operative surgery, etc., that we forget there is a sociologic aspect to medicine; we forget there is a civic duty we owe to the state by reason of our special medical knowledge; we forget that the State has a claim on us which is just and right and let us therefore acquaint the profession, acquaint the people with the necessities and demands of the dependents whose destinies, when wards of the State, the State Board of Charities directs.

Dr. C. Hubart Lovewell, Chicago:—I do not rise to discuss this subject either from the standpoint of an alienist or a practitioner of any special experience, but there is one thought that occurred to me during the reading of Dr. Billings' paper, and it is this: We as physicians should feel particularly thankful that we have men in the profession at its top who are willing to give their time toward the adjustment and rearrangement of these matters of State charities. I do not think any of us fully realize the financial loss to those men who have devoted so much time and energy to this noble work. I believe this State society can help the State Board of Charities very much in the conduct of its work, and it occurs

to me that a discussion of such problems as have been brought before us is eminently proper in a State society meeting. I think the rank and file of the society should go home to-morrow and with a definite purpose in view of writing their legislators and ascertaining exactly their position as to whether or not they are friendly to our State institutions solely as a means of distributing patronage. If we find that such men are not interested in the State institutions and in the interests of the people, then we should see to it that when election comes the right kind of men from our respective districts are sent to the legislature. I think doctors can take part in such matters with a great deal of propriety. We should take more interest than we do in matters of politics. We can point with considerable pride to the record which one of the members of our profession made in the State of Ohio, namely, Dr. Charles A. L. Reed. Many members of the profession and politicians will always remember Dr. Charles A. L. Reed's record. I believe that in each county society a man should be selected by the doctors as one who can represent his section of the country in regard to State matters and see to it that those matters are settled rightly. Many things are not being done on account of lack of appropriations for the proper carrying out of the work, and legislation is being blocked because of quibbling over the matter of patronage.

Dr. Frank S. Churchill, Chicago:—I have been very much interested in Dr. Billings' paper, and particularly with regard to what was said regarding economy in the conduct of these institutions. This is especially true with regard to the improvable epileptics. To get down to statistics, it might be well for us all to go to these legislators, as Dr. Lovewell has suggested, and point out to them what has been accomplished by the New York Colony for Epileptics, which is the best one in this country. It has been shown that the average cost to the State is \$30 per patient less than for patients in the other public institutions. We should point out to our representatives that by segregating the improvable epileptics in the colony, and giving them so much productive labor to do, it will be an actual saving to the State by the establishment of such an epileptic colony. I think all of us should appreciate the splendid and noble work the State Board of Charities is doing, and we ought to back them up in every way possible and serve notice on our representatives that the medical profession wants their recommendations carried out and they must do so.

Dr. Billings (closing the discussion): There are two or three things I want to speak of if you will bear with me for a short time. With regard to the epileptic question, of which Dr. Churchill spoke, many of our physicians do not comprehend the movement which should be carried out. In the State institutions there are over a thousand insane epileptics, and there are over three hundred feeble-minded epileptics in Lincoln. These people are not improvable. Once an epileptic becomes insane, that is the end. There is no improvement from that on. He may be housed and be removed from other people who do not have fits, so that he will not disturb them. If we are to segregate the insane and improvable epileptics, we should put them where they are so separated as to be in colonies by themselves, but yet administered to by the same institution. It has been estimated that there are ten thousand epileptics in the State of Illinois, most of them improvable. The State should take care of some of these people; it cannot very well take care of them all. It ought to have a farm where these people may work out-of-doors, that is, the improvable epileptics. The State Legislature in 1908 passed a bill for the establishment of a colony for epileptics, but since that time there has been very little done in reference to its establishment, and the doctors have not asked them to do so. The medical profession, with its energies united, could help us very materially in settling these State matters.

Two years ago, through the advice of the State Board of Charities, the Elgin Hospital for the Insane offered clinics to the members of the Fox River Valley Medical Association. The Governor thought these clinics were fine things. He said to me, We must publish a notice of them in the newspapers, because then the doctors will be pleased; but, I said, if it is published, it will give a certain notoriety to some people, and somebody will object to it. I suggested keeping it

quiet, but to go on with the clinics. What was the result? The Speaker of the House got out of his chair in the last legislature, and introduced a resolution himself objecting to the giving of clinics in any State institution, and consequently they were forbidden. In a meeting of the Chicago Medical Society, following this matter, I was present, and in spite of my protest, a vote of thanks was extended to Mr. Shurtleff for the things he had done in the legislature. The doctors stood idly by at the next election and let that man go in.

I am not appearing before you to receive any compliments as a member of the State Board of Charities. The work has not been unpleasant, because it has been a sort of a fight all the way through (laughter), and there is nothing I love better than a fight, provided I think I am on the right track. The eight thousand doctors in this State can accomplish a great deal if they will bring their influence to bear on matters of legislation looking toward the betterment of the condition of the unfortunate people of the State.

Dr. Lovewell has said that it is right for doctors to be in politics. I am not in politics. But the thing I am attempting to do, and that Dr. McAnally is attempting to do, is to steer as clear of politics as we can. We want to be so far on the other side as to exert our moral influence in the disposition of matters of state. The moment we become political, our influence is gone. If I continue in this work, I hope you will not consider me in the light of a politician, because I get up before you and talk about these things. (Applause.)

THE PROBLEM OF THE BLIND FROM THE DOCTOR'S STANDPOINT.*

J. T. McANALLY, M.D.

CARBONDALE, ILL.

From every standpoint the problem of the blind is complex and difficult. There is no other sense, the loss of which, leaves the victim so helpless. A very large percentage of the blind, therefore, notwithstanding the manual and industrial training afforded by our schools, become dependents upon society.

Blindness is a social problem. It is of vital importance to the state, since it produces a class of dependents who otherwise might be productive citizens. The state, therefore, has an economic interest in the prevention of blindness. The cost of blindness is heavy and can only be approximated. It has been roughly estimated that a person blind from birth and dependent through life will cost the state \$10,000. For several years our state has maintained two institutions for the blind—a School for the Blind at Jacksonville and an Industrial Home in Chicago. Besides these we have another closely related and of the greatest value as an institution for the prevention of blindness, the Eye and Ear Infirmary of Chicago. The biennial appropriation recommended for the maintenance of these institutions gives but little idea of the cost of blindness

* Read at the Fifty-ninth Annual Session of the Illinois State Medical Society, Quincy, Ill., May 18, 1909.

to the state, for it does not take into consideration the productive loss occasioned by total and partial blindness nor the many semi-public and private charities in behalf of the blind.

Blindness is a world-wide problem. It is found in every country and in every community. In Holy Writ it is said, "The poor ye have with you always;" and we may as truly say, "The blind ye have with you always." But blindness is not confined to the poor. It is a scourge upon all classes. It is doubtless true, however, that blindness is most prevalent among the poor. This is accounted for by reason of insanitary conditions, the want of high-class obstetric service and the dissipation of such means as they may have had, in trying to preserve their sight.

An estimate based upon such statistics as we have had and the most reliable statistics in other states places the number of blind persons in Illinois at 5,000. According to the report of the commission recently appointed by our State Board of Charities to inquire into the condition of the blind in Illinois, blindness is on the increase in this state. Quoting from Dr. Wilder's paper embodied in this report:

In 1870 there were 1,042 blind, or 41	to every 100,000 population.
In 1880 there were 2,615 blind, or 85	to every 100,000 population.
In 1890 there were 2,835 blind, or 74.1	to every 100,000 population.
In 1900 there were 3,767 blind, or 78.1	to every 100,000 population.

"It is admitted that these figures may be somewhat misleading and not altogether proper for comparison, because of the different methods pursued by the census takers of different decades; but they are at least suggestive, indicating as they do that blindness is not materially decreasing except as between 1889 and 1890, but is rather slightly on the increase."

In the matter of reliable statistics, a most important consideration in the study of every social problem, we are lamentably deficient. We greatly need a complete census of the blind in this state—one that would give us detailed information as to the condition of the blind, the occupations of the blind and more exact knowledge concerning the prevalence and causes of blindness.

Such a report would enable us to tabulate the 5,000 cases of blindness in this state and to determine, in a measure, the number due to diseases that may be prevented or may be relieved by treatment.

From a professional standpoint we are interested chiefly in the causes and cure of blindness. Nothing appeals to our sympathies more than does the blind child. Especially does it appeal to the physician, for he knows that many, very many, are needlessly blind. It is well known that a large proportion of all blindness in children results from ophthalmia neonatorum and blindness from this cause usually means blindness from neglect. In the schools for the blind in the United States we get the most reliable statistics concerning the causes of blindness, and we find that more than 25 per cent. of the pupils have lost their sight from infantile ophthalmia, an infectious disease—and therefore a preventable one. In

the School for the Blind at Jacksonville, this state, the superintendent, Mr. Jones, states that infantile ophthalmia furnishes about one-third of his pupils.

"It is an astounding fact, one not generally known," as forcibly stated by the New York Association for the Blind, "that one-quarter of all the blind children in all the blind schools of this country are unnecessarily blind." Such a statement ought to command the attention of the medical profession, and would seem to indicate that ignorance and carelessness are robbing many children of their natural birthright of sight. Who is responsible? The medical profession cannot escape a share of the responsibility, because it knows the nature and the mode of infection which produces ophthalmia neonatorum and how to prevent it. In the light of our present knowledge of this disease, to permit such an infection ought to be classed as criminal where reasonable preventive measures were not adopted.

It is not the purpose of this paper to discuss the symptomatology or treatment of this disease, but I desire at this point to consider briefly what may be termed reasonable preventive measures for the general obstetrician in private practice. The value of the well-known Cr  d   method of prophylaxis, which consists of dropping into each eye of the new-born babe 1 minim of a 2 per cent. solution of silver nitrate, has been well established. Twenty-eight years ago this important discovery was given to the profession. Where it has been adopted as a routine measure in lying-in hospitals the percentage of ophthalmia neonatorum is practically nothing. But that it has not come into general use in private practice is indicated by the fact that ophthalmia neonatorum still remains the chief factor in the production of blindness in the young and causes 10 per cent. of the blindness of all ages. Notwithstanding its recognized efficiency as a prophylaxis against a serious infection, the Cr  d   method will probably never be used very generally among private patients for the reason that it occasionally produces a conjunctival inflammation, which, though it may not endanger sight, is sufficient to cause the physician to reject it as a routine practice. This objection, however, does not hold against the newer silver salts. A 25 per cent. solution of argyrol or a 5 per cent. solution of protargol does not irritate or produce pain. Likewise Zweifel has extolled the value of silver acetate as a prophylaxis in ophthalmia and less objectionable than silver nitrate. The comparative value of these remedies has perhaps not been fully established, but it should be added that many ophthalmologists recommend a 1 per cent. solution of silver nitrate. The use of one of the silver salts would be indicated in all cases where there is a possible suspicion of gonorrheal or other infection.

The possibility of infection of the eyes of the child at birth should always be borne in mind by the obstetrician and the dangers of subsequent infection from careless bathing, soiled towels or sponges and unclean hands should be impressed upon the nurse. While the gonococcus of Neisser is recognized as the usual cause of the more virulent types of inflammation, it has been demonstrated that infantile ophthalmia may

be caused by various other micro-organisms. Hence any mucopurulent vaginal discharge, whether it contain the specific germ or not, should be considered dangerous to the eyes of the new-born babe. Cleanliness, therefore, is of the first importance. Everything that is brought in contact with the eyes of the child should be absolutely clean. As soon as the child's head is delivered, preferably before the eyes have opened, the eyelids and adjacent parts should be cleansed of mucus, blood and meconium. This is best done with small pledgets of cotton and sterilized water or a saturated solution of boric acid, using a separate pledget for each eye. As soon as possible after delivery the child's eyes should be wiped clean, care being taken that this is thoroughly done, and in the manner above stated. Following this, when indicated, a silver salt solution should be instilled. In all cases where the birth canal is known to be infected, and in all other cases where infection of the canal cannot be positively eliminated, the silver salt should be used.

Before leaving a case of confinement the physician should give instruction as to the importance of immediate notice being given if the eyes of the babe should become inflamed. Delay in such a case and the use of simple home remedies should be characterized as dangerous and pernicious. Many eyes are sacrificed which might have been saved if prompt and appropriate treatment had been given.

In this connection I wish to call attention to an Illinois statute for the prevention of blindness. It reads as follows:

SECTION 1. Should any midwife or nurse having charge of an infant in this state notice that one or both eyes of such infant are inflamed or reddened at any time within two weeks after its birth, it shall be the duty of such midwife or nurse having charge of such infant to report the fact in writing within six hours to the health officer or some legally qualified practitioner of medicine of the city, town or district in which the parents of the infant reside.

SEC. 2. Any failure to comply with the provisions of this act shall be punishable by a fine not to exceed \$100 or imprisonment not to exceed six months, or both.

It will be admitted, I think, that the largest percentage of ophthalmia neonatorum in this state occurs in the practice of midwives, and the enforcement of the existing law would be effective in saving the sight of many helpless infants. But our State Board of Health tells us that an adequate enforcement of the law is impossible, but that much can be done toward its enforcement if it can secure the cooperation of the physicians of the state. Such a request is reasonable and should be readily granted. Moreover, our present law should be amended so as to require a higher standard of qualification for the practice of midwifery and requiring the yearly renewal of license and registration. In addition to the present requirement to report promptly every case of inflammation of the eyes, midwives should be qualified and required to use some prophylactic against ophthalmia neonatorum under the direction of the State Board of Health.

Ophthalmia neonatorum should be stamped out. Much has already been done, but really effective work has hardly begun. It is a work in

the interest of humanity, as well as the honor of the medical profession, whose responsibility is most pronounced. During the last two years the American Medical Association has assumed the leadership in this country in a crusade against this disease. Medical organizations, state boards of health and philanthropic societies are joining their forces in a growing movement under the wise direction of the Committee on Ophthalmia Neonatorum of our national body. The committee's recommendations may be briefly summarized as follows:

1. Registration. The enactment of laws requiring the registry of births and placing the control and licensure of midwives in boards of health.

2. Education. The distribution of circulars of advice to midwives and mothers as to the dangers, method of infection and prevention of ophthalmia neonatorum.

3. Preparedness. The preparation and distribution by health boards of a chosen prophylactic, with specific directions as to its use.

4. Cooperation. Organized and concerted effort throughout all the states of the Union in carrying these provisions into effect.

The methods and views of the committee have been endorsed by a majority of the state medical societies, as well as by the American Public Health Association and the National Congress of Mothers. The medical profession of Illinois should lend its unqualified support to this movement.

Another phase of the blind problem of especial interest to the physician relates to an occupation for the blind. Massage as a suitable occupation for the intelligent blind persons of both sexes should receive more consideration by our profession than it has heretofore received. That the blind make competent masseurs has been satisfactorily proved, both in this country and in England. Several years ago there was founded in London an institution for massage by the blind for the purpose of developing a new occupation for the blind in England. It received the hearty endorsement of many eminent physicians. Their operators are carefully selected as to personal appearance, health and general fitness. They hold certificates of efficiency in massage before they seek employment from the public. In the proceedings of the International Conference of the Blind held in Edinburgh in 1905, the secretary of this institution is quoted as saying: "The first essential in any work to secure lasting success is to do it well. They do it well. As there is an increasing demand for what is well done in every profession it must clearly be to the public advantage to employ the blind as masseurs and masseuses."

Pupils from the Missouri School for the Blind have been taught massage and practice it with success. The superintendent of this institution, Mr. S. M. Green, writes me as follows: "I consider it (massage) one of the best occupations for those adapted to it that it is possible to teach the blind. One of our pupils was a boy and the other a girl, the latter being particularly acceptable to her women patrons. The absence of sight is regarded by many as an additional qualification for this work."

Dr. Robert C. Moon of Philadelphia, who speaks with the authority of an expert upon all questions relative to the welfare of the blind,

writes me concerning the subject, saying: "Massage is being practiced here (Philadelphia) successfully by the blind and several pupils are under instruction in massage at our Orthopedic Hospital. Many come from distant parts of this and other states to study here, and I believe the blind graduates are uniformly successful in practice; but no great advance will be made until the medical profession understands that the blind make good masseurs and the doctors recommend them to their patients."

Illinois, with an approximate population of 5,000 blind, with three state institutions maintained at great expense for the welfare of the blind and those threatened with blindness, with the hospitals and facilities for instruction afforded by a great city, has done nothing along this particular line of philanthropic work. What we need is awakened interest, adequate information and organization. We should have a permanent Commission on the Blind, with authority to make a complete census, giving us more exact data than we now have as to the number, their location and the condition of all blind persons in the state. Such a commission should make a broad and comprehensive study of the causes that produce blindness and the method of prevention, studying likewise the occupations of the blind that they may enable these unfortunates to lead the most useful, happy and independent lives. Furthermore, the commission should coordinate all agencies seeking the welfare of this class.

In conclusion, permit me to suggest the advisability of the appointment by this society of a Committee on Ophthalmia Neonatorum, which committee, acting under the direction of the national committee, shall be responsible for the work throughout the state and shall act in cooperation with the State Board of Health, health officers and the County Medical Societies of the state for the suppression of a disease which darkens the life and blights the hopes of those who are its victims through no fault of their own.

DIAGNOSIS OF FRACTURES.*

WILLIAM FULLER, M.D.

CHICAGO.

The diagnosis of fractures offers frequently as great difficulties for the surgeon's consideration as is experienced in many other and far more serious affections. If there is any truth in the maxim that "Every case is a law unto itself," it applies nowhere more fittingly than in the surgical subject now before us. The very foundation of rational therapy in the treatment of any disease is based almost wholly on a clear and comprehensive understanding of the real nature of the disease itself; the end results of all surgical work hinge upon the thoroughness and correctness of the diagnosis.

* Read at the Meeting of the Chicago Medical Society, Oct. 13, 1909.

Without a definite aim in view in the application of surgical principles such as must obtain with the diagnosis unsettled and unknown, conditions under any therapeutic measure are not always improved; not infrequently are made more serious and grave, and under these circumstances opprobrium and discredit are the regards of the surgical treatment.

Modern methods of diagnosticating, as well as treating fractures, have revised our knowledge of this entire and interesting subject. The *x*-ray has proved an invaluable aid in determining practically all obscure traumatic bone lesions. The exploratory or operative treatment of fractures is destined to become a more popular method not merely for adjusting broken bones after determining the type of fracture, but for estimating also the extent of other injuries at the site of fracture. With these two valuable aids, now so instructive and unailing in their use, the responsibility for bad results in the diagnosis and treatment of fractures will not in the future rest as lightly on the surgeon's shoulders as it has in the past. A carefully and correctly taken history of any fracture, the right interpretation placed upon any signs that may be present will justify a correct diagnosis in a large per cent. of fractured bones; any doubt remaining as to the diagnosis under these circumstances may be settled by a radiograph furnished and correctly read by an expert in this work. While this diagnostic aid closes any argument as to the presence and type of fracture, a small class of cases will still be encountered, which calls for another step in a diagnostic way now becoming popular as a means of treating fractures. I refer to the operative treatment which is so ably defended by those whose experience with it has been the greatest.

For a short study of this part of the symposium three, somewhat arbitrary, subdivisions of the subject appear to provide the clearest view: 1. Diagnosis of any fracture occurring in superficially located bones, or bones accessible to satisfactory palpation. 2. Diagnosis of fractures in deeply located bones, or any bone removed from easy or satisfactory palpation. 3. Diagnosis not alone in these two classes, but the diagnosis in all cases of any injury sustained by important structure, as blood vessels, nerves, or muscles in relation to the fractured bone.

In the first class, or the superficial bone, displacement of the broken fragments may be readily seen and felt; the classical signs of a fracture are, as a rule, here noted, but the surrounding soft tissues are generally uninjured; subcutaneous hemorrhage is, as a rule, slight, and swelling, therefore, is inconspicuous. Reposition of the broken bone ends yields to very slight manipulations and some simple immobilizing apparatus securely holds the bone pieces in the desired position. Fractures belonging to this description are the simplest fractures; fractures which may often be diagnosed and treated without the radiographic pictures, and with the simplest mechanical devices.

In the second class of cases, the location of the bone beyond the reach of the examining hand, makes for uncertainty in attempting a

purely bed-side diagnosis. Among these, the femoral neck, the humeral neck, with other long bones especially near the joints, often present serious obstacles to a diagnosis. In children, fractures in the ends of long bones simulate epiphyseal separations or dislocations, with which they are frequently complicated, especially the latter, in both children and adults. Outside of the bone lesions in these cases much damage is often suffered by the circumjacent soft tissues, ligaments are ruptured, muscles lacerated, producing hemorrhage into and around the joint sufficient to obscure many of the anatomic landmarks. Many signs of fractures may be absent in these cases, and for a diagnosis, the *x*-ray, which has in the last few years revolutionized the subject of fractures, is the next most likely way of making clear the character of the injury.

While the skiagraphic examination will, after all other methods have failed, set at rest all these points regarding the solution of continuity in the bone, it does not always suggest the surest and best course in the subsequent treatment; it does not show the presence or character of complicating injuries to nerves, blood vessels, or other structures; it may indeed prove misleading, if not well taken, and correctly read, by one competent to do this. In this, the second class of cases presenting these concomitant injuries, there is another means of making a diagnosis which, as has been stated, may be put also to excellent use in treating the fracture. Reference is made to the exploratory operation which is becoming, I think, a method of treatment in fractures superior to any other hitherto employed; a method superior to any other because it makes clear, certain and sure, the exact diagnosis in the bones and other tissues alike.

In the third class of this subdivision, or the diagnosis of injury other than that of the bone, the exploratory diagnosis is the only one to be considered. In less time than it requires for reading this paragraph this method discloses all the evidence needed for efficient treatment. Besides the ready diagnosis, the wounded extremity is placed in that condition which is most conducive to prompt healing; the extravasated blood, which is always more marked than is apparent, can be drained away, thereby immediately diminishing the swelling, without the likelihood of further embarrassment to the circulation. The limb is at once reduced to the normal size removing all fear of too great or dangerous pressure by the permanent dressing.

In the minds of most medical men, fractures receive less consideration by far than do many other surgical problems of much less importance. The subject is old and hackneyed, and appeals to some surgeons with less interest than the restoration of the supposed lost perineal support or the removal of that ever-present scar in the cervix uteri. Be it said to our shame that the treatment of fractures to-day is not different in many respects to that recommended and employed in times long past; it is the purest routine work in the hands of some of us, as most hospital records will abundantly show. More time is frequently given to the understanding of complicated and cumbersome appliances recom-

mended for treatment of fractures, than is directed to the study of the diagnosis of fractures, or of trying to determine the *real* indications for treatment.

It is not an uncommon thing to see the Velpeau or Desault bandage elaborately applied to patients with the idea of successfully fixing the fragments in a broken clavicle, yet no instance now comes to me in which I ever knew either of these methods to hold in reduction this very simple fracture. Once the importance of always making a correct diagnosis in any and all fractures is recognized present day methods of treating them will not long endure. Two similar fractures in different individuals may have many points in common, as regards the type of fracture and complicating injuries; yet call for a very different line of treatment, if results in the two instances are to be equal.

Unsatisfactory results in the treatment of fractures are often ascribed to some peculiarity in the reparative process not clearly or definitely known. The truth of the matter is that no such contention should be allowed, as it is almost invariably the result of failure on our part in not recognizing the true line of treatment such cases call for.

Stuart McGuire,¹ in a recent article on "Ununited Fractures," points out that some of our ideas on this branch of work are a century old and as useless now as then. He endeavors to show, for instance, by four facts, why bad results in treatment of fractures of the femoral neck are not due to a lack of or enfeeblement of the reparative process. These facts are: 1. Completely detached fragments of bone at other localities such as a disc removed by the trephine, take an active part in reparative action. 2. Post-mortem examinations in cases of fracture of the neck of the femur show that the upper fragment not only retains its vitality, but in a majority of cases exhibits evidence of a callus formation. 3. In cases of fracture where inspection has occurred bony union will almost invariably result, if the fragments are permitted to remain in apposition for a sufficient time. 4. In experimental cases produced on lower animals bony union was the rule when the fragments were held in position by direct fixation with a nail or screw, while in the control cases not treated, no union except of a ligamentous nature was ever observed.

These points seem well taken and are applicable to fractures other than the femoral neck. The key to good results is, of course, the proper treatment which, after all, is the succeeding step to an unerring diagnosis. A correct interpretation of all fractures or of any fracture will frequently lead to treatment so simple that its complete fulfillment will follow the use of a simple roller bandage or a strip of adhesive plaster.

As a further step in demonstrating the importance of always making a diagnosis of the presence of a fracture regardless of the circumstances

1. International Journal of Surgery, Sept., 1909.

or type of injury, allow me to mention in the briefest manner three fractures, with skiagraphs, now under my observation, two of which did not in any way suggest the actual condition.

The first skiagraph (Fig. 1) shows a fracture of the base of the third phalanx of the ring finger of the left hand. This occurred in a woman of about 30 years of age. She seized hold of a door-knob for the purpose of opening the door; the effort to accomplish this was slight, but rendered her hand immediately helpless. An examination the following day did not reveal a sign of fracture, but the radiograph tells the true story.

The second case (Fig. 2) is that of a young man, who received an accident which was sufficient to crush the entire limb. The evidence of a fracture, with the exception of the swelling, in this instance was not present; yet the skiagraph here, as in the previous case, calls for no further speculation on this point.

The third case (Fig. 3) is that of a man about fifty, who received no violence of a direct nature. This man stepped from a street car and after walking the distance of three blocks was unable to go further. An examination showed a wide separation of two equal parts of his left patella, due to a transverse fracture. The *x-ray* merely confirms the diagnosis, which in this instance was plain.

The citation of these three cases is merely to show, especially the first two, the possibilities of error in diagnosing the presence of a fracture of its type, if recourse to every expedient in this work is not made use of; the third case shows the apparently slight degree of force sometimes sufficient to produce a fracture.

It must be admitted, of course, that a large per cent. of fractured bones are restored to a fair degree of future usefulness, with the present methods of procedure in the diagnosis and treatment; but taken as a whole, a fair per cent. of fractures show results deplorably bad; so bad, in fact, that it has led to some severe criticisms from leaders in our profession. Maurice Richardson has said that "Surgeons of the highest skill feel more anxiety in the treatment of fractures than in any other injury, and that few can, without humiliation, review their results." Lane regards "the present day methods as generally employed in the treatment of fractures, a disgrace to surgical practice."

While these statements may be somewhat radical for the unanimous endorsement of conservative medical men, there is no difficulty in verifying, at least in part, that they contain elements of truth. We should ever bear in mind that it is the occasional case, in which a mistaken diagnosis has been made and consequently useless treatment employed, that is responsible for the censure and criticism laid at the surgeon's door in this neglected field of work. Fifty individuals with perfect results in their fractured bones, are much less paraded and talked about

in any community than is a single case treated with imperfect or bad desult. As McGuire says, "A man who dies after a surgical operation is buried and soon forgotten; but the man who has a deformed arm or shortened leg from badly treated fracture lives for a generation, a walking or limping advertisement of surgical limitation and incapacity."

What, then, are our duties towards an individual coming under our care with a supposed fracture? What is the manner of procedure particularly with reference to establishing the diagnosis of the fracture and its oftentimes associate injuries? It will be found, I think, that the number of methods or procedures in this regard will equal almost the number of varying types or kinds of fracture.

Fractures are sustained in practically all instances by varying degrees of violence; and generally by such a high degree of violence that the bone is not sufficient to arrest the vulnerating force and in consequence, injury other than that of the bone is produced, either at the seat of fracture or parts removed from this. The complicating injuries may be far more serious than that of the bone injury itself, and may be so grave in fact that attention in any way directed towards the fracture is out of the question.

The first duty of the surgeon, therefore, in assuming charge of a patient with a fracture, is to determine the presence or absence of other lesions besides the one of the bone. In the absence of these complications, the next step is the fracture, which rarely demands or calls for a hurried diagnosis. To handle or manipulate a recent fracture, unless it is in a purely subcutaneous bone, where the slightest palpation will furnish all the desired information, is a great mistake; the hemorrhage at the seat of fracture occasioned by this maneuver is increased, swelling and edema quickly supervene, the patient's pain is greatly intensified, and above all, little or no information is obtained. It is well enough to keep keenly active one's diagnostic acumen, but to do this by aimlessly manipulating the broken bones of unfortunate human beings is, to say the least, bad practice.

After having applied some improvised and simple dressing to the fractured extremity that will reduce to a minimum all movements of the limb, transport the patient to some reliable Roentgenologist, whose correct reading of a perfectly taken radiogram will then, and not till then, suggest the manner in which further manipulation, if at all, may be justified. Even then, unless a few days have intervened, indiscriminate juggling with the broken bones is not entirely free from danger. Fractures located in the shafts of long bones, superficially placed, are usually recognized in most of their peculiarities by these methods, plus the evidence furnished by the *x*-ray.

The fractures which are covered by large muscular masses, and those in close relation to joints are the instances in which great care should be

exercised that gross errors are not made in the diagnosis. As in the former class of cases, these should never be subjected to rough handling for reasons before given; the diagnosis is not possible by such methods, and the only thing to commend such a procedure is the idea, popular among people with broken bones, that something is being done; a notion not infrequently shared by the attending surgeon.

The differential diagnosis in this class of fractures is more difficult in children because of the ease with which they are mistaken for dislocations and particularly epiphyseal separations. For recognition of the latter injury familiarity should be possessed regarding all the anatomical peculiarities of the epiphyses. The time ossification occurs in these different pieces of bone should be known, and one should have made a thorough study of the radiographic pictures taken before, at the time, and after, the bone centers appear. For a comprehensive study of these conditions I know of no work better than that of John Poland on "Traumatic Separation of the Epiphyses," to which attention is directed. In fractures in these localities occurring in children, many of the signs are notably absent. X-ray pictures should be taken of the injured part, showing a lateral as well as a front to back view. It is, moreover, a great help to have the same views in radiograms of the other extremity at the same locality.

Should this evidence, together with that obtained by the commoner means of making a diagnosis, prove insufficient for reaching rather definite conclusions as to the nature and extent of the injury, the only alternative is that method which rarely fails in demonstrating the nature of most things surgical. The exploratory incision is a safe, sound and reasonable mode of procedure. It can be carried out equally safe in fractures of the diaphysis or epiphysis, and the opening of a joint, if need be, is attended with no more uncertainty as to the outcome than that of the peritoneum. Both are simply large lymph spaces and when explored in accordance with aseptic surgery, as we understand it now, rarely, if ever, fail to show a *quick* and *prompt* restoration to normal function.

Personally my experience with the operative method of diagnosing and treating fractures has been limited; but this experience, small though it be, has made the diagnosis so plain, the subsequent treatment so clear, and the results so satisfactory, that I have much regretted not having used it oftener. The procedure seems so safe, so rational and surgical, that one's conscience is not eased or relieved in contemplating some of the results obtained under other lines of procedure.

I believe, if we will exclude the vermiform appendix, the uterine appendages, and the acute obstructions occurring at the stomach's outlet, that the diagnosis of acute intra-abdominal conditions is very often the purest guesswork. I believe that the diagnosis by the ordinary laboratory and clinical methods in the greater per cent. of cases is beyond man's ability to reach with certainty. Nor is this a discouraging outlook, because the exploratory laparotomy makes an open book

of practically all the affections falling under this category, to the end that experienced and up-to-date surgery meets amply, and generally safely, all indications presenting themselves.

Is it less surgical or sensible to make use of the same radical interference for the elucidation of a puzzle about equal to that of the abdominal affections? The direct exposure by surgical means of a fractured bone is not as some have said the conversion of a simple into a com-



Figure 1.

pound fracture. Compound fractures follow, as a rule, great violence which crushes and devitalizes much of the surrounding tissues, invariably filling the open wounds with deadly pathogenic organisms. The broken and jagged ends of the bones often protrude or are driven through the skin, the clothing and frequently into the ground, gathering so much infectious material that no amount of effort can satisfactorily cleanse the wounds.



Figure 2.

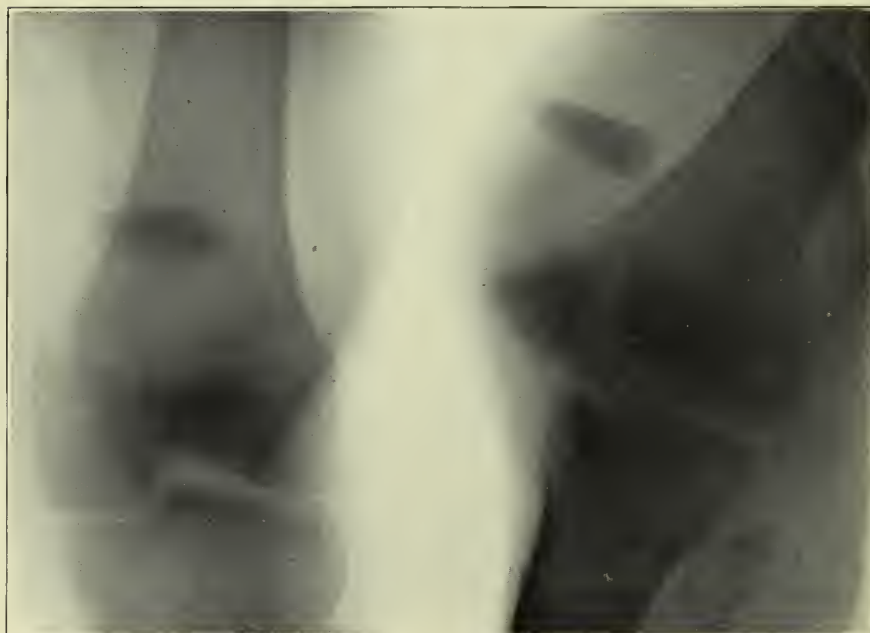


Figure 3.

The exposure of the seat of a fracture by surgical interference does not, then, produce a compound fracture in the common acceptation of that term; it is a surgical operation which is accomplished by carefully opening with all possible skill the skin, splitting or pushing aside muscles till the bone is reached through a field rendered perfectly clean and sterile. Instead of a wholesale mutilation of all structures in the extremity, as results from an accidental injury, the surgical exposure of a fracture discloses without trauma and without injury to any structure, all knowledge of the nature and extent of a fracture, together with similar knowledge of all complicating injuries.

Let us remember that this step, now regarded as useful by many in the treatment of fractures, should be one viewed in the light also of an important diagnostic aid; that the near future may place it beside the other useful, but sometimes unreliable, methods of determining the nature and character of fractured bones; and that this department of surgical work may prove at least no less interesting than other departments of surgical work, of less, or of no greater importance.

100 State Street.

RARE CASE OF PEMPHIGUS REQUIRING SURGICAL ATTENTION.*

STEPHEN C. GLIDDEN, M.D.
DANVILLE, ILL.

In presenting this case for your consideration I expect to be as brief as possible in giving an epitome of the case. I do not expect to discuss pemphigus as a disease, but rather to present this one case, giving the symptoms as I have seen them, going over it as carefully as possible.

Definition.—Pemphigus, according to Stelwagen, "is an acute or chronic bullous disease characterized by the formation of scanty or numerous irregularly scattered, variable sized, rounded or oval blebs, arising from an apparently normal or moderately reddened skin, and which may or may not be accompanied by mild or severe constitutional disturbances." I do not expect to give you numerous varieties or types of this disease, but will start in with the history of the case, as follows:

History.—J. B., an unmarried, white female, aged 28 years; no occupation; father living, age 60, healthy; mother living, age about 60, good health but nervous; two sisters died in infancy; one sister living and well, neurasthenic; two brothers living, well; one aged about 29, adjudged insane four years ago. Treatment administered for about six months and then pronounced cured. Other brother aged 23, is strong and well mentally and physically. One sister, who died about three months ago was mentally deficient from sixteen to twenty-six years of age, at which age she died. There is no history of specific disease nor tuberculosis elicited in any member of the family. This patient has never been well. At eight years of age she had an inflammation of the bowels for about one year; has always been very nervous and poorly nourished, was under the care of a physician almost constantly for five years from 1895 for a "nervous prostration." She began menstruating at fourteen years of age; was regular for

* Read at the Fifty-ninth Annual Session of the Illinois State Medical Society, Quincy, Ill., May 19, 1909.

about one year, then began to be irregular and have pain; from 1900 until October, 1908, the periods were regular and without pain; the latter date they disappeared.

Symptoms.—She came to my office September 26, for me to dress a small burn, which had caused a blister about as large as a ten cent piece on the right forearm, flexor surface; about two days later, a series of small blisters appeared down the arm towards the wrist. She also exhibited a series of scratches on the left forearm, left upper arm, and four three-inch long scratches over the chest between the breasts. These scratches seemed to have been made with a pin or needle. She denied any knowledge of them, saying possibly they were made while dressing. The day following, however, she had the right hip covered with scratches, which she claimed to have been made by a cat. I then became suspicious that it was a case of "factitious dermatitis" or one of "self-inflicted injury," and advised the relatives to watch her closely. Within a few days new blisters appeared over uninjured areas of skin not before involved and then a diagnosis was made. The

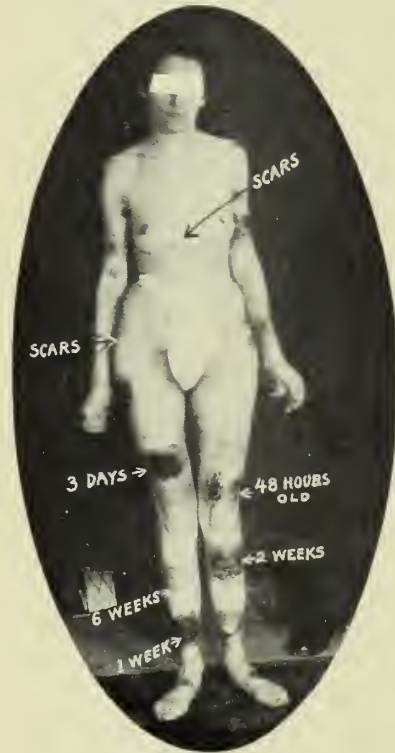


Figure 1.



Figure 2.

lesions that were preceded by scratches first showed inflammation along the line of scratch, then turned white or gray and a blister formed filled with a clear or cloudy serum. Within a few days, the area of blister turned black and dried, forming a gangrenous scab or patch. The lesions not preceded by injury to skin surface came with a slight blush of the skin, followed within a few hours or almost at once, in fact, by a large blister and sometimes surrounded by smaller ones. These lesions have varied during the progress of the disease markedly, some of the blisters will be large and firm, filled almost to the bursting point with a clear serum; sometimes with serum that is cloudy; again, they may be made up entirely of pure blood, almost black in character. The majority of the blisters are of the multilocular type, that is, walled off by trabeculae and if this blister

is punctured in one place only it will not empty itself, but it is necessary sometimes to remove the entire top of the blister before the serum will drain away. Another form has been of a flabby character, usually filled with a bloody serum and emptying itself when only a small puncture is made. This type contains much less serum than the other and is almost invariably followed by a large area of sloughing, this area being gangrenous in character. During the early stages of the disease, there was no evidence of involvement of the deeper layers of the skin, but during the last few months, the lower limbs have had large areas of gangrenous sloughing ulcers, which have usually gone through epidermis and corium, involving the subcutaneous layers. When this sloughing patch is removed with the scissors, there will invariably be particles of fat on the under surface of the piece removed. The duration of some of these lesions has been several months, but it eventually heals with practically no adhesion to the substructure. After healing has taken place, the scar is non-adherent and is sometimes pigmented. The scar area will be clear for weeks possibly, then with no

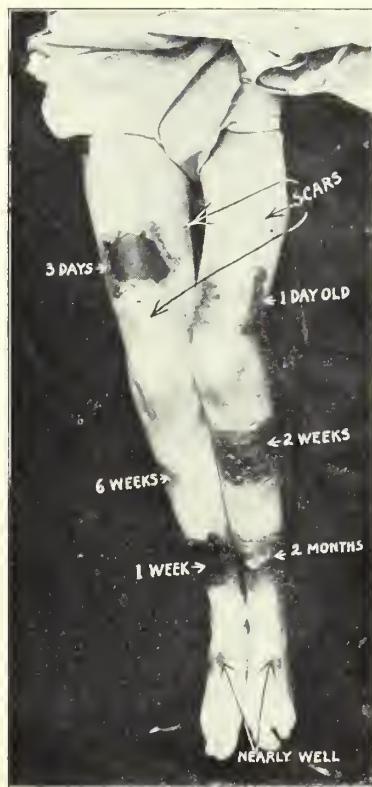


Figure 3.

apparent warning a new blister will appear over the same area, but the rule has been this new slough is not so deep and the resulting ulcer heals quicker than the original lesion. Some of the places over the body have broken down fourteen times and others have never recurred.

I am passing among you a series of photographs taken about six months after the beginning of the disease. I would like to call your attention to the symmetry of the distribution and also its bilateral character. Note the fact that no lesions have appeared upon the back from the seventh cervical vertebra to the gluteal region and hips. The backs of the legs or the flexor surfaces have always been free, excepting one small thin bulla over the back of the left calf. The chest has had a series of bullae between the breasts, but none have appeared for several

months. The extensor surface of the arms, except the forearms, have always been free. Mucous membrane of the mouth, vulva and anal region, and palms of hands, soles of feet, fingers and hairy surfaces have never been affected. The face has had two small blisters, which were quickly healed.

Examination.—The general appearance of this patient, as you will note by the photograph, is anemic and somewhat emaciated. Her tongue is coated with a heavy white fur, which has a pinkish appearance. It is flabby and shows the teeth marks; lungs are negative; heart, weak and irregular; temperature normal with an occasional exacerbation to possibly 99.4; liver normal; stomach slightly dilated; tenderness marked over McBurney's point. Tenderness, also, over both ovarian regions. Vaginal examination shows left ovary to be the size of a hen's egg. Urine, normal early in the disease, now shows trace of albumen. The bullæ, as a rule, seem to project abruptly above the normal skin without any areola. Occasionally, however, they have a reddened base. The contents are usually clear

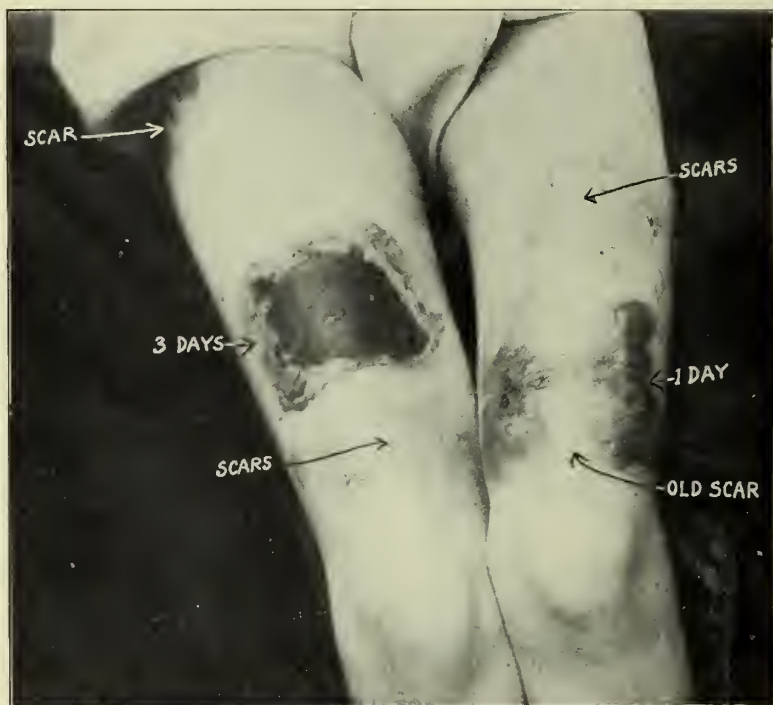


Figure 4.

serum. This may be variable and as previously stated may also be murky in appearance, stained slightly with blood or filled with black blood. The ones containing blood always have gangrenous patches. On account of making the dressings daily, the odor from this condition has never been bad. Microscopically, the serum shows staphylococci and the culture from the serum shows pure culture of staphylococci. In two instances the inguinal glands may have been markedly enlarged and tender when large areas adjacent were inflamed or ulcerating. She has complained of chilliness, nausea and vomiting, sleeplessness, occasional anorexia. At other times has exhibited a voracious appetite, overloading the stomach, with subsequent gastric and appendiceal colic and vomiting with resulting sleeplessness.

Nervous Phenomena.—Almost always during the office dressing the hands and limbs are constantly moving, necessitating an assistant while applying the dressings. After each dressing, and before the clothing has been entirely replaced, she falls over in a hysterical faint or sleep, which lasts from five minutes to two and

one-half hours. The head falls back, the mouth is open and fixed, breathing is stertorous. The right hand begins to rub over the appendiceal region, the left hand lying in the lap or hanging at the side perfectly quiescent. To control the movement of the right hand, considerable strength has to be exerted. When the left hand is placed over the appendiceal region it will not move. Strong ammonia as an inhalation and cold cloths over the eyes and face, and recently pressure over the ovarian regions is necessary to awaken her. She always awakens smiling and is immediately ready to get up and walk away.

Treatment.—Arsenic has been used in the form of liquor potassii arsenatis, also arsenious acid with iron, Bland's mass and hypophosphites; pepsin and trional and bromidia for sleeplessness; morphin for pain. Unfortunately, the hypodermic syringe was used in its administration during one of her hard gastric crises and it has since been necessary to use the syringe frequently. However, the recent injections have been of plain water only and it has seemed to have as much effect as the morphin. It has been necessary for me to make as many as four visits to the home and have her come to the office once during the twenty-four hours.

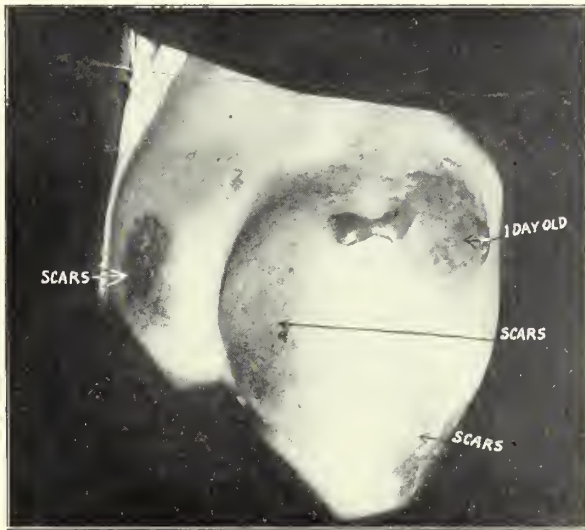


Figure 5.

Local Treatment.—I have cleansed these wounds with antiseptic solutions daily and for a protective have used an ointment containing balsam of peru, calomel, carbolic acid and lanolin with an unguentine base. The new blisters and scars have been painted with Churchill's tincture of iodine. Powders, wet dressings and ointments of different prescriptions were used, but thus far, the above seems to have given the best results.

Summary.—It has been suggested that this is a case of "factitious dermatitis" or "self-injury," and in favor of this theory the following arguments are expressed: The patient will not go to a hospital; will not have a nurse, and, therefore, is not under constant supervision; the lesions appear on the body only where her hands can easily reach; the apparent enjoyment she obtains from having the dressings changed; the fact that this patient is able to be up and around and come to the office for dressings, in spite of the large areas of ulceration. It has been suggested that carbolic acid, lye or other medicine might have been used. I, however, cannot reconcile myself to this theory. The surface of the bullæ shows

no escharotic effect, even under the glass. Many of the bullæ are multi-locular. Many of them are hemorrhagic in nature and repeat themselves over the scar tissues or appear on the normal skin with equal facility. They have also twice appeared under bandaged areas; they are, as a rule, irregular in outline, and I know of no medicine or substance which could be used to produce such lesions. I therefore present for your discussion what I believe to be a case of "pemphigus gangrenosus," which has shown lesions of several varieties.

LATER.—Since reading this paper in May, 1909, the patient has not had a hypodermic injection of morphin, but has had numerous hypodermic injections of sterile water, which has quieted her within half an hour. At this date, Nov. 26, 1909, she has nine fully-developed lesions, all of them having appeared under the bandages and as hemorrhagic bullæ. The general condition of the patient is about the same, there is not much additional loss in weight nor strength since writing the paper.

REPORT OF A CASE OF HODGKIN'S DISEASE, WITH PRIMARY TUMOR IN GALL BLADDER.*

E. H. WELD, M.D., AND P. L. MARKLEY, M.D.

ROCKFORD, ILL.

Miss J., aged 29 years, American; occupation housekeeper. Family history was negative, except for the fact that one brother, aged 12, had been paralyzed since he was 1 year old. Patient had ordinary children's diseases, with good recoveries. Menstrual period began at the age of 14 and has always been normal. At the age of 15 she was thrown from a buggy and struck on the right side, just below the ribs, and has had some pain in that side since that time. For the last six years patient has been having sudden attacks of pain in the right side in the region of the gall-bladder, which would last from one to two days. This region was very tender. Stools were normal; slight jaundice; temperature slightly elevated at time.

Physical Examination.—Moderate build, height 5 feet 5 inches, weight 108 pounds; skin over the whole of the body has a peculiar sallow, slightly icteroid color. It is moderately elastic and moist. Panicleus is moderate, musculature poorly developed, hair and eyes are black. The sclera are blue-white. There are no enlarged glands in any part of the body. Chest is long, thin, but fairly well developed. Lungs and heart are negative. The liver is not enlarged above, but on the lower side, in the region of the gall-bladder, a mass can be seen and felt having the appearance of a distended gall-bladder. The rest of the abdomen is negative. Patient's digestive system is good, never constipated. Nervous system is negative. Urine is negative. Blood: reds, 4,200,000; whites, 10,400; hemoglobin, 71 per cent. Differential count: Small lymphocytes, 19; large lymphocytes, 28 per cent.; transitionals, 6 per cent.; polynuclears, 42 per cent.; eosinophiles, 3 per cent. Few poikilocytes.

This patient was operated on by Dr. Markley on Feb. 4, 1908. The gall-bladder was explored through the incision recommended by Mayo Robson. The large tumor in the region of the gall-bladder proved to be an infected, thickened gall-bladder, containing pus and gall-stones, and presented the appearance of a tumor which invaded the liver. The liver was found to be very much elongated and intimately connected with the gall-bladder and the whole mass adherent to the parietal peritoneum in front. These adhesions were so dense that to separate them would have

* Read at the Fifty-ninth Annual Session of the Illinois State Medical Society, Quincy, Ill., May 18, 1909.

lacerated the liver tissue so a piece of peritoneum was cut out and left adhering to the liver. The tumor, consisting of gall-bladder and a piece of liver, was removed in one mass by first suturing the liver with cross mattress sutures of heavy catgut. The hemorrhage gave very little trouble, only one or two additional mattress sutures having to be introduced after the tumor was cut off. The gall-ducts were drained, and the patient made an uneventful recovery. She is now, fourteen months after the operation, free from pain in the right side and slightly stronger than she has been for the past six years. Her weight has increased 4 pounds, she has no enlarged glands, but her hemoglobin has decreased from 71 to 50 per cent., and she still retains the peculiar sallow-colored skin.

The tumor, consisting of gall-bladder and a small piece of the liver, is about as large as a man's fist and, macroscopically, seemed to be of dense fibrous tissue. Histologically, the tumor conforms in every particular to the Reed-Longcope variety of Hodgkin's disease. The section which was taken from the wall of the gall-bladder is the older process, and shows marked connective tissue reaction. The piece of liver is fairly normal, as far as the liver cells and lobules are concerned. There is a slight decrease of cloudy swelling and very slight fatty degeneration. The capsule of the liver is greatly thickened and edematous, giving evidence of a chronic peri-hepatitis. The central veins of the lobules all show hyaline thickening of the connective tissue, but no active process. The essential change in the liver is in the Glisson's islands, all of which show the characteristic small-celled infiltration and histologic picture typical of the neoplastic process. These nodules invade the whole island, surrounding the bile capillaries and blood-vessels. They are in all stages; some miliary in character, which are accompanied by no reaction of the connective tissue of the island nor proliferation of the bile capillaries, and the other older ones, larger in area, which have called forth an increase of the connective tissue and a biliary proliferation. The essential structure of the tumor is as follows: There has been an atypical proliferation of the endothelium, forming a ground network of large, pale, bladder-like epithelioid cells. In the interspaces of this network are found mononuclear lymphocytes, very numerous eosinophile cells, both mononuclear and multinuclear and plasma cells. In some places the epithelioid cells are multinuclear and form large giant-cells. Scattered rather sparsely throughout the tumor are plasma cells. The section of the gall-bladder wall is identical, as far as the essential structure of the tumor goes, with that from the liver. The gall-bladder section represents the older process. There is marked connective tissue reaction and the greater part of the mass consists of hyaline connective tissue, containing some smooth muscle, with the tumor infiltrated all through it. There are small areas in this section, where the tumor cells are much thicker than others. The eosinophilia in this section is very uneven in distribution, there being areas here and there where the eosinophiles are very thick and in others these cells are very scarce.

The tumor is evidently the result of an inflammatory process produced by an infected gall-bladder and gall-stones. It is one of those

border-line tumors between lymphatic sarcoma and pseudoleukemia or Hodgkin's disease. Hodgkin's disease usually starts in a lymphatic tissue in other parts of the body, and only later involves the liver. Dr. Hall, of Kansas City, states that he knows of one case where Hodgkin's disease was primary at the pylorus of the stomach. It is of especial interest that there are no enlarged glands, and yet the tumor presents the exact histologic picture of Hodgkin's disease. Clinically, the case would never have been diagnosed as Hodgkin's disease, but more probably as a sarcoma, which confirms the belief of William Cooley, of New York, that sarcoma (small round-celled) and Hodgkin's disease are very closely related.

SKIN GRAFTING.*

G. H. GALBRAITH, M.D.

CLIFFORD, ILL.

The subject is one with which many of us have to deal during our professional career. The physicians in rural districts and small villages, as well as those in cities, are confronted alike with this problem. The patient is usually one that has been caught in some machinery and partially skinned, or he may have been burned. Carbuncles and other large ulcers will cause a portion of the cases. As the granulation tissue forms, the new skin border extends to cover the denuded area. It is observed that the new skin border finally shades to a thin non-resistant covering over the granulating surface. This non-resistant covering may always remain thin, to ultimately break down repeatedly and cause trouble, particularly so if the area is exposed to injury or pressure. If by cicatrization the wound edges are approximated, the cicatrix being non-resistant is subject to injury from pressure. In extensive denudations the cicatrization may be indefinitely delayed, thereby prolonging recovery and producing contractions and deformities. To prevent these faulty repairs we resort to skin grafting or some other plastic method to cover the defect and secure future usefulness of the part.

There are several methods of skin grafting with which we are acquainted, and no one method will be sufficient in all cases. We must select the best method applicable to each individual case. When large areas are to be covered we can adopt the Thiersch method with quite a good result, except in parts of the body subjected to pressure, such as the palm of the hand or sole of the foot. Where the area to be covered is small and the surrounding skin is lax, some plastic method can be used, such as the sliding or one pedicle flap. The skin may be dissected from the subcutaneous fat, then drawn over the wound and sutured. When there exists too much tension parallel incision may be made just beyond the free dissection. This will allow considerable laxation and will usually be sufficient to prevent any stitch lesions. The incision lines will usually heal readily if done aseptically. When the wound is of such size and shape

as to make the described method impracticable, the skin may be dissected away in such shape as to cover the area, but leaving some portion of skin detached. This may be known as one pedicle flap method. It is a good one where practicable. Krause and others have been successful in removal of the entire thickness of skin to some distant part of the body. This method may have to be adopted, but usually an arm can be fixed sufficiently firm to use the attached flap method. In doing any skin graft, transplantation or plastic replacement of skin, the granulating surface must be clean, non-suppurating and sponged dry. It is better to curette away the excessive granulation tissue and dissect free the cicatricial border.

In doing the Thiersch graft several methods of lifting and placing the graft are in use. Some operators turn grafts with the epidermic side to oiled silk or rubber tissue, and then apply all at once to the denuded area. Some float the grafts in normal salt solution (warm), then place them. Some operators remove the graft and immediately place it on the clean sponged surface, being careful to prevent curling of the edges. Use razor dry, skin dry and sponged granulating surface and no fluids. After placing the grafts the grafted surface is covered with rubber tissue wet in sterile warm solution and arranged like lattice work. No chemical antiseptics are used during the operation. The following described method was used in one case, that of a destroyed palm:

Mr. C. E., aged 16 years, baker's apprentice. While cleaning a dough machine with a metal scraper, the right hand was caught and drawn through between the rollers. The scraper caught against palm and prevented entire arm from passing through, but literally tore the entire palmar surface away and portion of back of hand. The rent begun at the distal border of palm and across from little finger to index finger, thence along outer border back and up across carpo-metacarpal joint of thumb, thence along palmar border across wrist and all the covering of back was hanging loose by only a pedicle. In the palm, the skin and palmar fascia were torn away leaving the tendons exposed. The palmar surface of the fingers was rent as far as the middle joint. Under chloroform anesthesia the wound was sutured and dressed. In a few days gangrene developed in the palmar portion of the wound and sloughing began. The entire palmar covering was removed but the dorsal surface repaired nicely. The blood supply to the palm comes from beneath, and the cutaneous supply being insufficient, death of the part was the result. The hand was given a continuous warm water bath until the denuded surface granulated and cleaned nicely. The ring finger became gangrenous and was removed at the second joint.

The future usefulness of the hand was considered and it was decided that, if left to cicatrize the contractions would leave a useless claw hand, besides a delay in recovery, that, to do a Thiersch graft there would be insufficient resistance of skin to do manual work, but a whole skin graft would fill the requirements. The skin over the gluteal region, being thick and accessible, was selected. Under chloroform anesthesia the granulations were curetted and irrigated with saline solution and then over the *gluteus maximus*, on the same side as hand, two parallel, horizontal incisions were made about five inches apart and four inches long. The skin and subcutaneous fat and fascia were raised, then an opening for the thumb to pass closely was made. The hand was then put through beneath the raised skin with palm out and thumb projecting through opening for it. The free margins of flap were sutured to the distal and proximal borders of the palm. A piece of oiled silk was placed between the dorsal surface of the hand and the denuded surface of the hip. The entire field was dressed with plain sterile gauze, then hand and hip encased in plaster of Paris.

After twelve days the plaster and dressings were removed and the two pedicles were cut; the free edges were then sutured to sides of the palm wound. The entire hand was now dressed in plain sterile gauze and changed every two days. The graft did nicely and but little contraction of fingers resulted. The graft has been quite sufficient for palmar purposes. He has very good movement of fingers. The palm is somewhat full as though it was padded. The fulness is due to the subcutaneous fat removed with skin, but I believe it is really an advantage to have used it, thereby lessening tendon contractions and adhesions. The denuded surface on hip was partially covered by raising the borders and drawing together by using steel pins on each side, then winding silkworm gut in a figure-of-eight manner across the wound thus permitting a change of dressing beneath tension threads.

SUMMARY.

When a large surface of skin is destroyed, skin grafting should be done to hasten repair, prevent deformity and secure the future usefulness of the part. Since the Thiersch grafting can be done without an anesthetic, it should more frequently be done than it is in the outside towns. By resorting to the use of this method of repairs the surgeon not only benefits his patient, but gathers to himself greater confidence of his clientele. When it is evident that the Thiersch graft will not suffice, some other method should be adopted. Each case must be considered separately. The object of this paper is not to present a new subject, but to call attention to a much-neglected field for work, especially so by the practitioner out of reach of the hospital.

PREPARED FOODS AND DIABETIC ARTICLES.

R. T. WOODYATT, B.S., M.D.

CHICAGO.

It is impossible in a short paper to present anything approaching a full consideration of this topic. Only certain general principles may be mentioned, which, well established though they are, demand from time to time restatement and illustration.

Justification for the existence of artificially prepared foods lies in the fact that under certain conditions in life there arise hindrances of one sort or another, which interfere with the succession of events that mark the passage of fats, proteins or carbohydrates, as the case may be, from their source in the common food stuffs to the body-cells which represent the ultimate consumers. Such hindrances may block any step in the series. Thus, 1. Agencies outside the body may prevent food reaching the mouth as in the case of explorers in regions where common foods deteriorate rapidly. 2. Absence of suitable teeth, esophageal stricture, etc., may make solid articles useless. 3. Derangements of the mechanical functions of the stomach or intestine or abnormalities of their various secretions may prevent the resolution of good common foods into absorbable forms; and, finally, 4. Foods that have been successfully eaten, digested and absorbed may ultimately fail to be utilized because of some metabolic disturbance like that seen in diabetes. Such difficulties can sometimes be circumvented by artificial preparations.

* Read at the Fifty-ninth Annual Session of the Illinois State Medical Society, Quincy, May 18, 1909.

To judge whether or not a given prepared food is desirable we must know first the nature of the difficulty which makes common foods unsuitable for the case in question. We must know in how far the preparation in hand meets this difficulty. Besides these considerations we should always know the total fuel value of the preparation (how much energy it can liberate when eaten by a normal individual), its cost per calorie of heat as compared with the common foods and finally, since we cannot all analyze every specimen employed, the reputation for honesty enjoyed by the manufacturers of the article.

Extravagant, ignorant or wilfully misleading claims are sometimes made on the labels which tend to encourage the erroneous idea that foods can be concentrated to such an extent that they approach more nearly to the potency of dynamite than to bread and in this connection it may be recalled that, when burned in the body as food, *1 gram of protein yields about 4 calories of heat, that 1 gram of sugar yields about the same and 1 gram of fat about 9 calories.* Excepting alcohol and other substances of theoretical interest, there are no foods but fats, carbohydrates and proteins, so that the food value of any prepared article must depend upon its content of these substances. Albeit such preparations may present to the user protein, fat or carbohydrate in forms particularly suitable for use by certain weakened organisms, still their total food value for an invalid or anyone else can not exceed that of the aggregate of the proximate principles they contain. Pure dry protein such as dry egg-albumen or dry casein represents the limit of protein concentration. The limit for carbohydrate concentration is a dry sugar, for fats a pure oil. No food, so far as anyone knows, can yield per gram more heat than a gram of pure oil or fat.

There should be, therefore, no misunderstanding of the significance of a label like that which appeared on a certain¹ "Colden's Liebig's Extract of Beef and Tonic Invigorator," which read: "Its tonic and nutritive qualities are sufficient to sustain the body without the addition of solid food." Analysis of this preparation by Street showed the following composition: Water, 68.85 per cent.; alcohol, 16.53 per cent.; total solids, 16.35 per cent (much of it saccharine matter); total nitrogen .05 per cent. (corresponding at best to about .31 gram of protein).

Apart from its alcohol and sugar, then, this article has a food value per 100 grams equal to that of a half teaspoonful of milk and it costs 17 cents per 100 grams (90c. for 18 oz.).

For purposes of detailed discussion all prepared foods may be divided into three main groups:

1. Infant and invalid foods; which in general are designed to get sustenance into individuals in whom the various digestive juices are impaired or yet undeveloped.

2. Preparations made from meats.

3. Diabetic foods.

The first group comprises most of the milk preparations and those foods which consist in the main of sugars, dextrines and starch. Examples: Mellin's Food, Nestlé's Food, Malted Milk, etc.

1. The Chas. H. Crittenden Co., New York.

The second group includes the following: 1. Meat extracts—solid; e. g., Liebig's Extract, Armour's Extract, Mosquera Beef Jelly, etc. Meat extracts—fluid; e. g., Asparox, Vigoral, Bovox, etc. 2. Meat juices, Bovinine, Wyth's Beef Juice, etc. 3. Meat powders, Somatose, Beef peptonoids. 4. Mixed proprietary preparations; e. g., Peptomangan-Gude, Panopepton (Fairchild).

In a recent report of the Connecticut Agricultural Experiment Station (thirteenth report on food products for 1908), by Jno. P. Street, there appears an analysis of eighty-six brands of prepared foods for sale on the American market. This report includes official definitions of such terms as "meat extract," "meat juice," etc., and enters in detail into the merits and demerits of the individual market preparations. Anyone desiring accurate information on this subject will find this report extremely valuable. The charts used in connection with this paper were in large part compiled from Street's report, a few figures having been taken from other sources. In addition to his figures another column was added in which the food value of 100 grams of each article was reckoned in calories so that their worth as fuel might readily be compared with that of bread, eggs and milk. In another column was placed the cost of each preparation per 100 calories of energy (i. e., the cost of the weight of the article necessary to yield 100 cal. when taken as food), these figures being derived from the cost of the package, the weight of material contained and the caloric value of the material reckoned from the analysis.

Comparison of the figures leads to the conclusion that the meat extracts, meat juices and proprietary groups contain insignificant amounts of food principles and that attempts to sustain life for any protracted period through their use must surely lead to starvation over an expensive route. The uses of articles of these types are in the main comparable to those of such things as tea, pepper and medicines. They are in no sense foods.

The articles comprising the first group on the other hand are in reality foods. Their prices are higher than common articles of diet but not usually exorbitant. They possess in the main characteristics which make them valuable in certain properly selected cases. A common failing in the infant food preparation is a content of unchanged starch under labels which describe the preparation as suitable for infants of any age. On labels and direction sheets there is a tendency to uphold the idea that these foods used exclusively will supply all the requirements of a developing infant, whereas their uniform lack of the so-called antiscorbutic elements found in fresh foods is but one conclusive argument against its correctness. But when one knows what the analyses of these foods show and what the specific requirements of a given case are, there is no good reason, if the price be reasonable, why they should not be employed and to good advantage. Even in infant feeding a prepared food of known composition, the use of which is properly supplemented by fresh elements, may be found valuable for selected cases.

DIABETIC FOODS.

What we can expect of diabetic foods depends upon our conception of what diabetes is. Diabetes mellitus is a disease in which the body has in part lost its ability to utilize sugars. Sugar arrives at the point where it should burn, but fails to do so, and accumulating in the blood creates an hyperglycemia. Disregarding accessory factors, which may play a part, we can say that ultimately the failure of sugar combustion in diabetes mellitus depends upon lack of "a something derived from the pancreas." The pancreas, like other glands, is capable of being stimulated into a state of fatigue. It may be conceived that excess of sugar in the blood of healthy individuals acts directly or indirectly (e. g., through nerves) as a stimulus to the pancreas, as a result of which more internal secretion is set free and the excess of sugar thereby automatically taken care of. Thus removed, the stimulating influence ceases and the pancreas rests. In diabetes it may be assumed that the pancreas is functionally weak. A small excess of sugar in the blood, let us say, calls for a response from the pancreas and as in health the excess may be removed. Sooner or later, perhaps as a result of some dietary excess, or of some shock to the nervous system which results in an outgush of sugar from the glycogen depots of the liver, an unusual hyperglycemia occurs. This calls for a strong pancreatic response, more than the functionally weak gland can give, and some excess of sugar remains unutilized in the blood. If hyperglycemia persists for any appreciable time the continuous pancreatic stimulation thereby engendered results in glandular fatigue. Less and less secretion is elaborated, less and less sugar utilized, the hyperglycemia grows progressively worse and a vicious circle becomes established. The condition of the pancreas then corresponds to that of a heart with broken compensation and as the treatment for such a cardiac condition is rest, so in diabetes rest is needed for the pancreas. To secure this we must control the stimulating hyperglycemia, which means primarily the withdrawal of carbohydrates from the diet, secondarily reduction in the amount of protein, until absence of glycosuria tells us that the blood sugar percentage is approximately normal. After prolonged rest of this sort a return of the pancreatic function to its previous state is frequently spoken of as an increased body "tolerance for sugar."

Such restoration of sugar-burning capacity, such increase in "tolerance," is the first aim of diabetic therapy. There are cases in which the ability of the body to utilize carbohydrate has sunk so low that as a result certain secondary changes in the fat metabolism have supervened. These changes are mainly responsible for the condition spoken of as acidosis. In health and in diabetes withdrawal of carbohydrate from the diet frequently causes the appearance of a previously absent acidosis or an increase in the severity of an already existing one. These aggravations are temporary. Still in such cases as already have a dangerously large amount of the acetone bodies in the blood no increase at all is permissible. In these cases, and only in these cases, should one refrain from an attempt to improve tolerance. Just where to draw

the line is a matter for individual judgment. Where means are at hand for accurate quantitative measurements of the daily excretion of acetone bodies one may be justified in closely approaching the danger point. When these means are not available a more respectful margin of safety must be maintained.

A good general plan for the treatment of ordinary mild and moderately severe cases is: 1. To make the urine sugar free; 2, to keep it so for two weeks even if this entails a temporary under nutrition; 3, gradually to add to the diet known amounts of carbohydrate until one finds in exact figures what the limit of tolerance is; 4, to place the patient on a permanent dietary in which the daily allowance of carbohydrate is about 60 per cent. of the maximum that might be borne without recurrence of the glycosuria.

During desugarization no special foods are needed and during the two weeks of rigid dieting no great complaints arise even when no bread at all is permitted. Bread craving, like thirst, is generally not seen in its aggravated form when glycosuria has been checked, or, what amounts to the same thing, when the cells are taking care of sugar enough to prevent excess in the blood. In the third stage of treatment, also, the object is to find out how much starch can be borne and to do this it is best to have the diet consist of a strictly non-carbohydrate basis to which one may add at will 50, 100, 150 or more grams of white bread on the composition of which we can rely. The number of c.c. of milk may be similarly determined. In the fourth stage the patient passes from close observation. Even if he does not crave carbohydrate he longs for something on which to spread butter and which "bites" like bread. The question then arises: Is there no bread which will satisfy this demand and still not contain starch?

Gluten is a protein like casein or egg albumin. It can be obtained fairly pure by washing the starch out of grain, the gluten obtained by this method being a gummy mass which, when dried and ground, gives a genuine gluten meal. Articles made of such a product with no additions of starch or sugar may be eaten by most diabetics in the same quantity as other proteins. The so-called "gluten flours" on the market are seldom of this kind, however. All but a very few of them contain some starch—some 10, some 20, some 40, some even so high as 75 and 80 per cent., the last figure being the content of starch in a good white flour. Furthermore, the "gluten flours" of nine out of ten of the concerns selling them vary in percentage from time to time, so that while yesterday a certain brand analyzed 20 per cent. today it may show 30 per cent. of starch. Now, suppose that by experiment in stage three of treatment we have found that a patient can tolerate no bread. Then, before we give him any "gluten flour," we must be sure that he gets one which contains virtually no starch. Suppose he can tolerate 100 grams of white bread. Then we may allow him 200 grams of a 40-per-cent. "gluten bread," or 300 grams of a bread containing only 20 per cent. of starch. While a patient may get more satisfaction eating six slices of a 40-per-cent. bread than by eating three of plain white bread,

so that there is some use for a 40-per-cent. article, it must not be forgotten that such articles are prone to vary in quality and are generally high-priced. Allowing a patient to buy and use gluten articles unrestrained without the physician's knowledge of where he gets them, how much starch they contain and how much of them he eats, amounts virtually to no treatment at all and a waste of money in addition. Misunderstanding of these simple facts is widespread.

For an article which contains less than 4 per cent. of starch at most, which serves as an acceptable vehicle on which to spread butter, cheese, meats and the like, which has considerable nutritive value and which, used in moderation, seldom disturbs digestion, *almond bread* has few superiors. It is made as follows: Blanch the almond nuts by soaking them in hot water and removing the skins. Soak the blanched nuts in two or three changes of hot water. Dry and then brown slightly in an oven. Grind to a meal in a coffee mill or meat chopper. Take a whole egg and stir into it enough almond meal to give the mass a consistency suitable for molding into cookies. Bake in a hot oven for about ten to fifteen minutes.

A genuine and reliable gluten flour can be obtained from Herrmann Barker, Somerville, Mass. He makes three grades, A, B and C, running approximately 2, 6 and 10 per cent. starch, the labels as a rule tallying well with the actual content. The price is high of necessity. Casoid flour of Steward, Callard & Watt, London, is a preparation analogous to a true gluten flour, except that milk protein is used instead of that from grain. Pure casein, such as can be bought from reliable chemical houses, can also be used if free from toxic matter. Dried egg albumin belongs in the same category, but is very expensive. The method of making these protein meals into cakes is much the same in all cases, and their value as foods is almost the same, although it is of some interest to remember that of the proteins so far studied casein gives in the body the most protein sugar.

A recipe for biscuit from a protein meal (e. g., gluten) is as follows: Beat up an egg with a little salt, add 1 ounce of water and beat until thick, then add a tablespoonful of cream. Stir into this enough protein flour (two heaping tablespoonfuls) to make a gruel of thin consistence and beat until it becomes thick. (Time required, twenty to thirty minutes.) Bake thirty-five minutes in hot oven, in well-buttered muffin pans. [Winton, "Diabetic Foods" (Conn. Agric. Exp. Station Report, 1906, No. 25), which see for analytical details of a large variety of market preparations.]

231 Dempster St., Evanston.

DISCUSSION.

Dr. James B. Herrick, Chicago:—Mr. President: A paper of this sort deserves a great deal of commendation, not only for the high character of the work, but because it shows us that the question of dietetics, which we have looked upon as extremely dry, as one best suited to the analytical chemist and laboratory man, can be brought home to us in a simple and scientific manner, and shown to be something with which we should be perfectly familiar. We are all of us, I think, inclined to be careless in paying attention to the proper diet, particularly

in the case of adults. While many illnesses do not need very careful and strict attention, general directions being sufficient, all of us make mistakes in not being explicit in telling patients what to eat and what not to eat; and we all err, if not in prescribing, at least in allowing to be prescribed or to be used many of these so-called prepared foods without knowing what is their nutrient value. It is well that we should have our attention called frequently to the fact, as has been done by Dr. Woodyatt, that many of these foods are not what they are claimed to be, and that when we think we are giving our patients nourishing food, we are perhaps giving them little better than nothing.

The more one sees of diabetes the more is one inclined to feel that there is a certain group of cases in which, in spite of the utmost care as to diet, fatal results will follow. There is another group in which the patient may be quite careless, the physician negligent as to diet, and yet the patient lives to a ripe old age and perhaps dies of some other disease. But there is a very large group in which the diet is of the utmost importance, and it is here that we should study our cases with particular care. We should be familiar with the content of the food we are giving. We have all heard it said repeatedly that most of the gluten flours on the market are frauds and delusions, and yet in practice I fear many of us are rather negligent and sometimes allow our patients to take these gluten flours, to their great harm. Patients feel, if they are taking gluten flour, they can take it in almost unlimited quantities; and sometimes, when a patient, who is passing sugar, comes to us and we inquire as to how much gluten flour he is taking, we are surprised to learn that he is taking it three times a day in the shape of bread, toast, pancakes and in every way possible, and if we look into the matter, we may find we are allowing the patient to eat large amounts of starch, and he is greatly surprised when we tell him we prefer to have him take a small amount of wheat bread and to give up the gluten flour entirely. In this way we may cause, at times, a disappearance of sugar from the urine.

As I said at the beginning, our attention can well be called at frequent intervals and by such papers as that of Dr. Woodyatt to the great importance of dietetics.

Dr. Arthur R. Elliott, Chicago: It is very hard to kill a therapeutic fallacy when once it has become established in the minds of the profession. That is demonstrated on all hands, but nowhere more emphatically than in the fallacy of diabetic foods, which persists in spite of the emphasis and the repetition with which the fraud of the so-called gluten breads has been shown by chemical analyses.

The mistakes made in the care of the diabetic by many physicians are two: They are the administration of specific medication and the employment of gluten flours. Seldom does the internist see a case of diabetes that has not been permitted gluten bread, and that without any specific restriction as to quantity. An objection to gluten bread does not consist so much in the fact that it contains carbohydrates, because every diabetic must receive a certain amount of carbohydrates. The error made in connection with the use of gluten bread is that its administration is not restricted, so that it is not known how much carbohydrate the patient is receiving. A much better end can be secured by employing honest bakers' bread, the carbohydrate content of which we know restricting the quantity within certain definite boundaries. Too great emphasis cannot be placed on (and this emphasis cannot be too frequently repeated) the fallacy of gluten flour.

Dr. Frank Billings, Chicago:—I want to repeat what Dr. Herrick has said, that this paper deserves commendation from us. It represents more work than a written paper, and I hope every member of the Society, who has an opportunity to see it in *THE JOURNAL* will study it. It means a great deal.

I am glad to have Dr. Woodyatt show us the absence of food value from many of the liquid beef extracts. I wish he had gone on and showed us something of the want of value of the ordinary beef and chicken and veal and other broths so commonly used in the sick-room. More than twenty years ago Fothergill died, and the older members of the profession will remember reading his many little pamphlets on practical subjects, and he called attention to this very point before

chemistry had advanced to its present status. He said in one of his pamphlets that the ordinary beef extract, so commonly used in the sick-room, was nothing more than concentrated urine, which is a fact. It has no nutritive food value. The fact of the matter is, that these extracts have less food value than some urine. Diabetic urine would be far better food than any of these extracts. Not only that, but these things are frequently poisonous. How many times do we find in the sick-room these beef extracts used in conditions in which the individual's excretory organs are not throwing out his own waste, and we are increasing the purin bodies in that individual's body by the use of such things. Nevertheless, they are advertised everywhere; they are used everywhere.

I remember very well, some fifteen or more years ago, when Armour & Co. first started their beef extract, I had several hot discussions with Mr. Armour, the elder, relative to the value of beef extract, and finally the old gentleman was so interested in the subject that he got the beef extract made by his company analyzed by chemists, and the food value of it estimated by them. He told me one day that he had found the statement I made in regard to Leibig's and other extracts having no food value was correct, and that his might come in the same category; but, he said, it is mighty good as a stimulant, and I am going to continue to sell it on that basis.

I only wish to corroborate what has been said, and not take up your time by discussing points with which I agree.

Dr. Frank S. Churchill, Chicago:—A discussion on food and food values is sure to appeal to the pediatrician. Although analyses of babies' foods have been repeatedly made during the last twenty years by reliable chemists, still it is just as well to have them repeated, and repeated constantly, if for nothing else than to show the absolute unreliability of these foods from time to time. When Dr. Woodyatt publishes his paper, I wish he would publish along with it the analyses made by the chemists of the companies.

As far as feeding babies is concerned, we have tried to be accurate in that matter, and all these things that have been described as having no food value have been thrown out of the window. We never use them. We rely on taking milk, the ingredients of which we know, and with that milk prepare a food for the individual baby adapted to the digestive powers of that baby, so far as fat digestive capacity, sugar digestive capacity and proteid digestive capacity are concerned. By taking various amounts of cream, fat-free milk and sugar, we can prepare a food for the individual baby which shall possess any amount of fat, sugar and proteid we desire, and which we think the individual baby can take care of. We no longer depend upon any of these so-called baby foods, and the sooner all of them are done away with, the greater will be our success in the feeding of infants.

While it may not be pertinent to suggest business here before the Section, I would like to suggest to the House of Delegates that they bar from the exhibits, which, I believe, are on the floor below, all such things as those that have been mentioned and condemned.

Dr. Charles Spencer Williamson, Chicago:—There is one point I should like to see emphasized more than it has been, and that is with regard to the various extractives. It is a familiar fact that these extractives have slight nutritive value. In fact, for the purposes for which they are given they are not only worthless, but less than worthless, in that they are exceedingly toxic. Experiments made several years ago demonstrated conclusively that groups of young animals would live a considerably longer period of time when given water to drink than they would by being fed on the majority of these extractives. When we realize that the profession as a whole is using them liberally in fevers and acute diseases, quite irrespective of their nutritive value and of their influence upon the cardiovascular system, I think we ought to emphasize this feature in our discussions, that not only have they no food value worth speaking of, but they are injurious in the quantities administered, by reason of the deleterious effects they have upon the cardiovascular system. This should not be lost sight of, especially in connection with the acute infections.

Dr. Woodyatt (closing the discussion):—With regard to publishing the analyses made by chemists (together with the claims) of the manufacturing companies, etc., which was referred to by Dr. Churchill, I will say that this has been done in the article by Street, contained in Bulletin No. 13 of the Connecticut State Agricultural Experiment Station, New Haven. The bulletin can be used as a reference for these things.

In regard to the point that some carbohydrate can be tolerated by a certain number of diabetic persons without a recurrence of glycosuria, as Dr. Elliott properly suggests, I would simply emphasize the fact that we lay too little stress on the necessity of rendering and keeping the urine of such cases constantly sugar-free.

The continued presence of hyperglycemia and, as evidence thereof, glycosuria is to be considered as injurious because of its constant tiring stimulation of the pancreas, and the resultant tendency to reduce the carbohydrate tolerance of the body. No uncertain method should be employed to keep the allowance of carbohydrate food well within the limits of safety.

ULCER OF THE STOMACH, WITH SPECIAL REFERENCE TO ITS DIFFERENTIATION FROM CANCER, WITH SOME REMARKS ON TREATMENT OF THESE CONDITIONS.*

FRANK M. MASON, M.D.
ROSSVILLE, ILL.

The condition of ulcer is of rather frequent occurrence, the percentage ranging as high as 10 per cent. and as low as 5 per cent. in series of cases demonstrated at autopsy. The disease is much more common in some countries than others, or in some parts of the same country than others, possibly more frequent in females than in males, and the largest number occurring between 20 and 30 years of age; old age is not exempt (though not so often), nor is it so rare in children; cases in the fetus have been reported. Heredity does not play much part, although so credited by some authors. Anemia is an etiologic factor, as evidenced by its occurrence in chlorotic girls and servant girls; its etiology is also evidenced in occupation, as shoemakers, tailors, etc., due to pressure on stomach. Trauma and anything that may produce anemia and atrophy of the mucous membrane are also causes. Circulatory disturbances as well as the anemias are etiologic factors. The disease occurs frequently in heart troubles, arteriosclerosis and liver troubles, as well as in tuberculosis and syphilis.

The *duodenal ulcer*, although the symptoms and etiology are similar in many respects, is more common in males. Ulcers, though usually single, are sometimes multiple, variously estimated from one to forty in individual cases. The usual situation of the ulcer is near the pylorus, but it may be situated anywhere within its walls. Usually it is found on posterior wall near the pylorus and lesser curvature.

Two forms of ulcer are found, the acute and the chronic. The acute ulcer is small, round, punched out, with no thickening of the peritoneum, forming a contrast, anatomically, with the larger, uneven, serrated,

* Read before the Hoopeston Medical Society, March 15, 1909.

indurated, margined, chronic ulcer with its thickened peritoneum. The chronic ulcer may extend entirely over the lesser curvature, down onto the greater, or may be circular (rare), or girdle, forming hour-glass contractions of the stomach. These large chronic ulcers may continue for years without any attempt at healing.

These ulcers may perforate posteriorly into the lesser peritoneal cavity, or anteriorly into the greater peritoneal cavity; adhesion with any of the adjacent organs may be found, the spleen, the left lobe of the liver, omental tissues; anteriorly, usually a fatal peritonitis results. Abscesses, subphrenic, pyopneumothorax, may be the outcome of a posterior perforation: also there may be perforation into the pericardium, even into the left ventricle; also into the pleura; fistulous communication, gastroduodenal, gastrocolonic, gastrocutaneous, with general subcutaneous emphysema.

Hemorrhages may occur in both forms of ulcer: in the chronic form at the base of the ulceration. The splenic artery may be eroded, but much more often the hemorrhage is from the artery of the lesser curvature. Aneurisms at base of ulcer, embolisms and endarteritis are commonly found. These ulcers sometimes heal without leaving any special damage behind. Often stenosis of the pylorus and sometimes hour-glass contraction may result, as well as severe pain from adhesions, and chronic gastric catarrh, the result of the ulceration.

Origin of the ulcer of the stomach is very obscure. Virchow's view that it is due to thrombosis is in harmony with the anatomic facts observed, but will hardly account for all cases. Mere mechanical injury will not furnish sufficient cause in itself for the production of ulcer. Ewald concludes that there are certain predisposing causes, such as found in abnormal blood conditions; e. g., amenorrhea, chlorosis, anemia after confinement, in which condition there is a superacidity of the gastric juice, and also the alkalinity of the blood is lowered, which is in accordance with Cohnheim's theory. Sidney Martin advocates the theory of bacterial necrosis of the gastric mucosa, and suggests that the frequency of the ulcer at the pyloric region is associated with the absence of the acid secreting glands in this region.

It is not yet proved that hyperacidity of itself is a great factor in the production of ulcer. This probably has been proved: (1) That gastric ulcer occurs wherever gastric fluid flows; (2) the process in its earliest stages is essentially a necrosis; and (3) healing is prevented in some way by the action of the gastric juice. One cannot accept the theory that the hydrochloric acid is regularly increased in gastric ulcer; the statistics varying so must be due to varying ideas as to what constitutes hyperchlorhydria, what means are employed in testing, and by what reactions one should be guided. Ewald, in a series of 132 cases, found hyperchlorhydria in 34.1 per cent.; subacidity in 9 per cent., and normal acidity in 56.8 per cent. Lenhartz, out of 13 cases, found hyperacidity in only 3, and subacidity or anacidity in 5. Wirsung and Wagner found 42 per cent. of their cases with hyperacidity. Einhorn, in America, Robin, in France, and Fenwick, in England, found about 75 per cent. of their

cases had hyperacidity. Rutimeyer found hyperacidity relatively much more frequent in men.

The following may be justifiable from our present knowledge: 1. Gastric ulcers occur only where hydrochloric acid flows; hyperacidity is common in gastric ulcer, though in many cases there is no increase, and there may be a decrease, even anacidity. The amount of acid varies at different stages and periods of the malady. 2. Hyperacidity is common in the absence of gastric ulcer. 3. In itself it is insufficient to cause gastric ulcer. 4. Hyperacidity occurs commonly in chlorosis, and thus may be an indirect factor in its etiology. 5. Hyperacidity may induce gastric ulcer, when through any cause a portion of the mucous membrane is injured, and anemia and necrosis are produced. 6. Hyperacidity prevents the healing of gastric ulcer as Matthes demonstrated by irrigations with .56 per cent. solution of hydrochloric acid. 7. Secondary ulcers which form after gastroenterostomy are probably associated with excessive hydrochloric secretion. 8. Hypersecretion sometimes occurs with gastric ulcer, in which case the action of the hydrochloric acid is constant.

Much has been said about the neuropathic theory of gastric ulcer, but aside from the lowered power of resistance induced by an injured nervous system, and also the inducing of hyperacidity, there is but little relationship proved.

The general symptoms and diagnosis will now be considered. In order that we may comprehend the scope of ulcer, it is necessary that we designate the clinical forms, as well as to more or less fully outline its symptoms, and to differentiate it from all other diseases.

The clinical forms described by Welsh I shall adopt in the purposes of this paper. 1. Latent ulcer with entire absence of symptoms, as revealed at autopsy. 2. Acute perforating ulcers, with or without any previous gastric symptoms, perforation and speedy death. 3. Acute hemorrhagic form of gastric ulcer. 4. Gastrologic-dyspeptic form; the common form; gastralgia, dyspepsia and vomiting, the most frequent symptoms. 5. Chronic hemorrhagic form, with very marked hemorrhage. 6. Cachectic form, markedly resembling cancer. Usually represents or corresponds to the final stage of one of the preceding forms. Cachexia rapid. 7. Recurrent form. 8. Stenotic form, pyloric obstruction and dilatation of stomach.

Under such a variety of conditions it is not to be wondered at that sometimes mistakes in diagnosis are made. The condition may be met with accidentally, post-mortem; perforation may be the first thing noticed. In other cases a long-continued dyspeptic condition may finally be diagnosed ulcer upon the appearance of a sudden hemorrhage.

The most common symptoms by which ulcer is determined are: 1. Dyspepsia, which may be slight or virulent, most all cases having *nausea* and *vomiting*, but they may be entirely absent, the vomit usually being intensely acid. 2. Hemorrhage is present in from 25 to 50 per cent. of the cases, and it may be slight or profuse; the blood may be greatly changed or quite bright; the hemorrhage may be trivial in effect, or may be fatal in its results. The stools may contain blood. The source of the

blood is usually arterial, and comes on usually after meals, probably due to the action of digestion and the stretching of the walls of the stomach. When there is a severe hemorrhage the patient is pale, cold, clammy, dizzy, semi-conscious and more or less collapsed, followed by headache, fever, thirst, small, rapid pulse, with dyspnea or sighing respiration. In the acute ulcer we have the abrupt and sometimes fatal hemorrhages; in chronic ulcer the hemorrhages vary much. Moynihan divides them into four groups: 1. Latent; insignificant bleeding. 2. Those that are intermittent, infrequent, moderate. 3. Those which have become worse after the symptoms have developed; copious, repeated, perilous. 4. Sudden, overwhelming, fatal. Sometimes all the hemorrhage is from the bowel, but when we have a copious hemorrhage from the bowel it usually means duodenal ulcer or some other cause.

"Occult bleeding" was first recognized as a valuable symptom by Strauss and Boas in ulcer, and especially cancer of the stomach, followed by such men as Hartmann, Kochmann, Schloss, Freidenwald and Einhorn, who demonstrated that the examination of feces, vomitus or gastric contents for evidences of hematemesis and hemorrhages has considerable diagnostic value. Much blood may be present in the stools without being recognized macroscopically, owing to alterations and character of diet. The examination for "occult hemorrhage" must be preceded by the exclusion of all other sources of blood, such as bleeding from the gums and the nose, abrasion of mucous membrane of the esophagus by the passage of a tube, other diseases of the digestive organs and general systemic diseases, of which hemophilia, purpura, scurvy, arteriosclerosis and tabes are examples. Other diseases having "occult hemorrhage" are malignant diseases of the gastrointestinal tract, pancreas and liver, also hemorrhagic pancreatitis, which give often constant reactions; also stenosing gastritis, alcoholic gastritis, intestinal parasites, tuberculosis, syphilis, or simple catarrhal ulceration of the bowel, as well as hemorrhoids, fistula and fissures; ingestion of much raw meat, sausage, etc., might give the reaction. In suspected ulcer it is well to examine the stools after pain for the presence of blood.

The blood may be detected (1) by the microscope, for blood cells and pigment, which I like better than all other tests; beside this we have (2) the spectroscopic test; (3) the microchemical test, and (4) the chemical test, such as the guaiac resin, aloin and the benzidin tests, the description of which I have neither time, space nor inclination to go into. A negative result is so regarded after several examinations have been made, and its value lies in its diagnostic, prognostic and therapeutic aid. It is a sign of some lesion of the mucous membrane of the stomach, and its constancy would signify carcinoma, and its intermittent finding points to ulcer, when the tests are applied to the stomach contents. In ulcer cases the finding is most constant when pain and nausea are most marked. Also its diagnostic value is shown by the fact that repeated examinations in chronic gastritis, gastric atony, simple hyperchlorhydria, and nervous dyspepsia, gave negative results; while in ulcer about 40 per cent. gave positive results, and in carcinoma gave 96 per cent. from stomach con-

tents examinations, and 79 per cent. from feces examinations, in a series of cases given by Rutimeyer. As regards prognosis, it is of value, inasmuch as increasing intensity of reaction suggests an unhealed ulcer, and would signify that surgical aid is needed. With proper treatment the bleedings should diminish.

Pain perhaps is the most constant and distinctive feature of ulcer, and is variously described as burning, boring, cutting, gnawing, tearing, and probably lancinating, or cramping; sometimes a dull ache, at other times excruciating in character, and frequently radiates to the back, and is more particularly felt when the stomach is empty, and is relieved in some cases by taking food. The most characteristic form is a severe paroxysmal gastralgia, and radiates to the back and sides. Pain is present in about 90 per cent. of all cases. This pain occurs during the digestive period, either immediately after taking food, or at the height of digestion, and is increased by the hyperacidity. When the ulcer is at the pylorus the pain may not appear until about three or four hours after meals; the time of appearance thus gives a clue as to the site of the ulcer. Pain is found under the left costal edge, at first only slight and paroxysmal, later more constant and leads to emesis. Riegel lays great stress on this left-sided gastric pain, which is constant, or intermittently progressive, and regards it as a sure sign of ulcer. There is an absence of any other cause for this pain; it is not reflex, such pains are in the median line or are right sided; and are worse after meals, always in the same spot, and lead to emesis. Pain coming on three or four hours after meals is also symptomatic of duodenal ulcer.

The effect of food upon the pain is always very important in the diagnosis of ulcer. The pain is made much greater after the ingestion of much food, or of solid food, but there are many exceptions, as foods very often give relief, especially albuminous foods, if there be hyperacidity. Sometimes there is no relation between the taking of food and the time of pain. Rutimeyer found this to be the case in about 14 per cent. of a series of cases. Perhaps the ulcer is latent, and no pain exists, then the prognosis is more grave, but there are many healed, latent ulcers. Pressure usually does not relieve the gastralgia of ulcer, while, on the contrary, other gastralgias are so relieved; but this is not always the case. The pain may or may not be relieved by the change of posture; as a rule this is so, but one can easily draw false conclusions.

Tenderness is elicited usually just below the xyphoid cartilage and a little to the left, or the most tender spot may be two or three centimeters to the left of the spine between the tenth and twelfth dorsal vertebrae. It is important that the site of tenderness correspond to the site of the pain after eating, and the situation of this tenderness rarely varies during the whole course of the disease. Boas has devised an algesimeter which determines the degree of sensitiveness; an epigastric sensitiveness to four kgms. of pressure, or less, and a dorsal sensitiveness to five kgms. of pressure, would indicate ulcer.

The cause of the pain must certainly vary. Sometimes it can be ascribed to the ingestion of food, sometimes to gastric movements, or to

peritoneal involvements; scars with adhesions will cause pain. Moullin says (denied by Pawlow) that the gastric mucosa has no afferent sensory nerves; consequently the pain must be due to the inflammation of the lymphatics near the ulcer and extension to the parietal peritoneum. Lenander regards the pain due to adhesions, while Mackenzie holds that it is a referred pain, the tenderness depending upon muscular and cutaneous conditions and not upon organic changes of the stomach.

Vomiting perhaps is less constant than the pain, although Johns Hopkins shows the reverse. In Fenwick's cases 100 per cent. had pain, 72 cases out of 265 had vomiting, and 71 per cent. had hematemesis. The vomiting may appear only at intervals of a week or more. It has a very definite relation to pain, by which it is usually preceded, the vomiting having its chief cause in pain and not in nausea, which fact is of diagnostic importance. Vomiting, while it may occur soon after the taking of food, usually does not occur until the height of digestion, and the pain is relieved by the vomiting. The quality of the food also has something to do with the vomiting, more often occurring after the ingestion of solid food; coarse foods are sure to bring it on. The vomitus in acute ulcer does not show the signs of motor insufficiency, while in old ulcer, where we have gastric dilatation due to pyloric obstruction, we have the vomitus of motor insufficiency and gastrectasis, varying according to the food taken and the length of time it has been in the stomach. When there is hyperacidity, digestion is quick, and the albuminoids are well divided, although at other times it is not digested at all, and comes up sour enough to put the teeth on edge.

Not much is to be gained from physical examination in cases of acute ulcer of the stomach. Tenderness is a fairly reliable sign; a localized tender spot which can be felt through to the back on pressure (which pressure should be carefully made) and just below the xyphoid cartilage is a very significant symptom. Boas lays stress on tenderness near the twelfth vertebra on the left side; oftentimes the tenderness is diffuse. No tumor is palpable in fresh ulcer. In older ulcers the physical findings may be much more manifest, due to scarring, pyloric obstruction, etc. On inspection peristaltic movements of the dilated stomach may be seen, while palpation may reveal in the upper right quadrant a tumor of varying size, more or less movable, according to adhesions, situation and so forth. Reinhardt's cases showed about 16 per cent. with tumor, in all of which the autopsy revealed a small ulcer. Moynihan in 100 gastroenterostomies with ulcer found ten with tumor, all of which were benign, the tumor mass being due to a thick ulcer, a muscular hypertrophy, or exudate with adhesions.

Gastric analysis varies according to the type of the ulcer. In the acute form the HCl may be normal in amount, the proteolytic digestion unimpaired, and motor power good. Other times there may be hyper- or hypoacidity with motor insufficiency; blood may also be present. With more chronic forms the site of the scarring ulcer will determine in a measure the findings. With pyloric stenosis there is usually hyperacidity and food retention, good digestion of albuminoids, with little or no

change in the starches. Sarcinæ and yeast cells are found in these cases. Lactic acid may be found in these cases if we have hypo- or anacidity. Rutimeyer found motor insufficiency in 42 per cent. of his cases of ulcer.

One of the difficult things with which we have to deal is the developing of cancer upon ulcer. Cruveilhier was the first one to suggest this in 1835, we believe, although he thought a cancerous diathesis essential to its development. Dittrich, in 1848, analyzed 166 cases of cancer of the stomach and found that eight of the cases had formed on an old cicatrix, and two where the very edge of the ulcer had been the starting point. In 1883 Hauser and Zenker established beyond a doubt the relationship existing between cancer and ulcer of the stomach, while Kollmar never saw a case in twenty years' experience at Tübingen. The idea has now become well fixed that ulcer is one of the commonest causes or starting points of carcinoma; and it was suggested recently by competent authority that in the cases studied at Mayo's clinic fully 61 per cent. of the cases of carcinoma had their origin in ulcer. That cancer and ulcer are frequently associated is evidenced by the fact that each selects the pylorus and lesser curvature for their development, and also that cancer so frequently springs from scarred tissue on the outside, and in the stomach the scars are rendered irritable by the presence of food and hyperacidity.

The transition period between the symptoms and signs of the original ulcer and the onset of the cancer varies. Sometimes so short that the diagnosis may be doubtful, at other times the first symptoms of ulcer may have been many months or years previous. Long periods of latency are common. We cannot always tell when the transition began, and our conclusions are based upon the course of the malady. When ulcer patients begin to lose flesh more rapidly, have a more constant pain, with a change in character, tenderness more diffused, more nausea and vomiting, at least more regular vomiting, the vomitus more copious and rancid, and readily excited by liquid food, blood more frequent in vomit, occult blood more frequent in the feces; patient more languid, weak, anemic; appetite gone; and to all this we add decrease in acidity of the stomach contents, together with a probable tumor, although hyperacidity may be present to the end, we may be pretty safe in diagnosing cancer.

Numerous conditions may be, and are, taken for gastric ulcer, and I need not summarize the symptoms here: the dyspepsia, the pain, the tenderness, the hematemesis, the usual hyperchlorhydria, etc., which make a diagnosis more or less certain, but mistakes are many. Among the things from which it must be differentiated are simple gastralgia, hyperesthesia, simple hyperacidity, hysteria, gastritis, hyperemesis, uremia, gall stones, renal calculi, aneurisms of the abdominal aorta, spinal disease, hemorrhagic erosions with exfoliations, arteriosclerosis, duodenal ulcer, carcinoma.

1. In gastralgia there is paroxysmal pain not directly excited by food nor related particularly to its ingestion. Pressure relieves the pain as a rule, while the opposite generally is true with ulcer. There are no tender spots. Vomiting does not necessarily give relief to pain; while in ulcer

the relief is usually instantaneous. Digestion is normal, and the trouble is not relieved by diet; usually there is gas eructated without odor. There are no dyspeptic symptoms between attacks, no hemorrhages, no occult blood, no impairment of nutrition, any or all of which may be present in ulcer. Yet we have sometimes a nervous dyspepsia with severe gastralgia and emaciation that is very difficult to diagnose from ulcer.

2. In simple hyperchlorhydria there is rarely vomiting or hematemesis, no occult hemorrhages, very little tenderness, and no dorsal tender point. The pain appears one to three hours after meals; it may be in the night, especially if there is hypersecretion. The cause is usually of nervous origin, and the proper diet with alkalis gives prompt relief. If the case does not yield, and the pain comes on soon after meals, with frequent relapses, the hyperchlorhydria may be due to ulcer underlying the condition. The laboratory findings in these cases are often misleading, yet they are not worthless. Much HCl points to ulcer, but you cannot be certain about it, unless you have some of the other cardinal symptoms of ulcer.

3. In simple hyperesthesia there is usually pain after meals with vomiting; the pain comes at once, regardless of the character of food or whether it be hot or cold. There may be tender spots, but they are not constant in their location; the vomiting varies as do the tender spots, and may give no relief as in ulcer. The nutrition is good, the HCl not much in excess, and the rest cure is of no avail; no occult blood.

4. In gastritis a cause may usually be found; pain less severe, more diffuse, and pressure does not affect it much. If blood be present it is seldom large in quantity.

5. Pregnancy with hyperemesis: The history of the case and the local findings are the best means of diagnosis; pain is always absent, no tender points, no bleeding.

6. The gastralgia which often accompanies uremia may be differentiated by other signs as well as by urinary findings.

7. Hemorrhagic oozings from the gastric mucosa due to minute erosions often perplex the general practitioner, as by our present means of diagnosis we have no way of differentiating. Nothing is usually found anatomically. And while it is said that it is more common in women; that pain comes on after food, as in ulcer, only more diffuse; that vomiting is more rare and often with hemorrhage; that the blood is bright red and may recur for years, and that there are but few tender points, although we lack many of the dyspeptic symptoms found in ulcer, yet it makes a diagnosis rather obscure.

8. Biliary colic: Gall-stone colic is often very difficult to differentiate from ulcer, especially if the ulcer lie in the duodenum, or at the pylorus. It is extremely difficult in those cases of gall-stone colic where there is no jaundice nor bile in the urine. There may be tender points, and relief may follow vomiting. However, as a rule, in biliary colic, there is sudden and extreme pain, which may disappear as suddenly as it came; tenderness in the right hypochondrium, slight fever, and sweating; usually there is nausea and vomiting without any relief to pain

until the stone passes or drops back into the gall bladder. After the attack is over, the general health seems good and digestion normal; but there is often superacidity and coexisting paroxysmal gastralgia. The sudden onset and character of the pain and previous history of the case will usually make diagnosis easy in the typical cases.

9. Arteriosclerosis: This is usually found in old people and sometimes it is accompanied by severe pain, generally of stomach and bowels, but does not localize. The digestion may be good and, in spite of any kind of treatment, the pain persists. The character of the gastric symptoms, the history of the case, and the marked arterial signs are usually suggestive of a proper diagnosis.

10. Duodenal ulcer, according to Mayo, occurs in proportion to gastric ulcer as two to three. Of the last two hundred cases reported by Mayo, 98 were duodenal, 87 gastric and 15 independent of either viscus. In diagnosing duodenal from gastric ulcer we have a more difficult task, as we have those cases that are indistinguishable from gastric ulcer in symptoms and course; then we have another class of duodenal cases with hemorrhage from stomach or bowel or both, and with no other symptoms; again a class of cases resembling biliary colic, with its pain and tenderness, and intermittent jaundice; and, lastly, the perforation cases, resembling perforation of the gall bladder and appendicitis. From gastric ulcer the first two cases or classes of cases are the ones furnishing difficulties in differential diagnosis. However, a few points may serve to help in diagnosis. There is pain in both, and it may be of the same character, yet in duodenal ulcer the location is usually to the right of the middle line and more often taken to be biliary colic than gastric ulcer; and does not occur until several hours after food. It is a very prominent symptom, and occurs in 80 per cent. of all cases. The pain may radiate, but not as a rule. Vomiting is less common than pain, occurring in about 18 to 20 per cent. of the cases. Tenderness is usually to right of median line and no tenderness to the back. Acidity usually increased. Hemorrhage in duodenal ulcer is both from the stomach and the bowel; more often from the bowel than that of gastric ulcer. The diagnosis is made more commonly from the association of the local tenderness and the melena, or even from the tarry stools in the absence of pain, than from any other signs. Sometimes hematemesis and melena occur together and may be profuse, even to a fatal termination. This is severe in at least one-third of the cases, and the secondary symptoms, the pallor, collapse, reactionary fever, etc., may precede the appearance of the blood for three or four days. Wrong diagnoses are frequently made, and most cases with perforation have been taken for appendicitis. Moynihan's mortality, five out of seven recovered, Mayo's cases, four out of six recovered, post-operative.

11. Carcinoma: In cancer, debility and emaciation often precede the other signs; the pain is more constant and does not bear such a constant relation to food, often independent of food, often nocturnal, but often may be quite absent, simply a feeling of distress. The breath is foul and there is anorexia as a rule; there is less relief from vomiting, which

resembles that of motor insufficiency, and shows but little HCl; but usually some lactic acid and other evidences of fermentation and the Boas-Oppler bacillus. The hematemesis that occurs is more of the character of coffee grounds vomitus, and occult bleeding is more continuous than in ulcer. More trouble in diagnosis exists when we have ulcer of the pylorus with tumor with symptoms of dilatation, or where a cancerous growth has been engrafted upon an ulcer. The view is now held that a great many cases so arise. Cancer, however, limited to the pylorus is rare, and when tumor exists other signs are prevalent. If it should be limited to the pylorus, the onset is obstruction with vomiting, cramps, emaciation in elderly people, and dietetic treatment affords no relief. If first seen when there is much dilatation the diagnosis must be made from the history and examination of the stomach contents; 90 per cent. of these cases show an absence of HCl and the presence of lactic acid, while in ulcer we have hyperacidity or a normal acidity. The history of ulcer causing dilatation is of long standing, because it is of gradual development; lavage improves the appetite, and the general condition improves.

With cancer engrafted upon ulcer there is increase of pain, the picture gradually changes, the tumor becomes nodular, more emaciation and weakness, and the HCl gradually becomes less, although it may persist to the end. In differentiating cancer, two main types must be considered, viz.: those without tumor and those with tumor. Where no tumor is evident, we have cases with little or no motor insufficiency, and those with definite gastrectasis. And we might add a third, cancer at cardiac orifice. When there is no motor insufficiency the cases are easier to diagnose. Here we can depend upon the lactic-acid test, which is rare in the other classes of gastric diseases accompanied by atony. Therefore early presence of lactic acid probably means cancer. Other diseases to be considered in this category are ulcer, neurosis, chronic gastritis, and atrophy of the mucous membrane. In ulcer and neuroses the HCl is usually normal as well as the pepsin, or they may be increased; no lactic acid in either of them. In chronic gastritis the history of the cause, the gradual onset and slow progress, with exacerbations, are characteristic; the secretions are disturbed later in the disease, the HCl is less commonly absent and is often only diminished. Motor insufficiency is later, too, progresses less rapidly, less gastrectasis, less stagnation of solids, occult bleedings less persistent, if they are present at all. In atrophy a protracted course, the motor power unimpaired for a long time, no lactic acid, but little emaciation; anemia, as in cancer. Pernicious anemia shows little emaciation, as a rule, although it may be extreme. HCl may be absent, and lactic acid present sometimes. Even the blood count may be hard to distinguish, but the cachexia and the anemia do not go *pari passu*; no hematemesis, and usually no occult bleedings.

Addison's disease resembles cancer in malaise, weakness, dyspeptic signs, etc., but the pigmentary changes are present, and the analysis of the stomach contents differs materially. Cancer of distant organs induces no motor insufficiency, and lactic acid is not present; however, HCl may be absent.

Second class of cases with gastrectasis and pyloric stenosis are more difficult to differentiate, because lactic acid is so often present in gastric diseases (other than cancer) with atony; and here the presence of lactic acid has but little significance. The main thing to be differentiated in this class of cases is scarred ulcer of the pylorus without palpable tumor. The history of previous ulcer, the longer duration of the malady, the presence of HCl, the finding of sarcinæ, the absence of lactic acid, the eructation of H_2S gas, absence of cachexia, all suggest a benign condition.

When tumors are present we have to determine whether they are gastric or extragastric, and whether they are benign or malignant. Tumors outside the stomach simulating gastric cancer are in the main perigastritis, cancer of the duodenum, omental or peritoneal tumors, peritoneal tuberculosis, tumors of the transverse colon, tumors of the gall bladder, cancer of the liver, abnormal conditions of the pancreas, besides other conditions in kidney, liver and spleen.

Gastric tumors arise from cancer or sarcoma, scarred pyloric ulcer, hypertrophic pyloric stenosis of infancy, spasm of pylorus, lipoma, fibroma, and foreign bodies. Cancer of the lesser curvature usually presents achylia from the beginning; less motor insufficiency until infiltration occurs; and is not usually palpable unless there is a ptosis or the tumor is large. The patient's weight is usually well maintained because the motor power is good until late in the disease. Estimation of the ferments aids regional diagnosis sometimes; the fundus yields pepsin and rennet, while the pylorus yields only pepsin. If pepsin is diminished and the rennet preserved it shows probable pyloric involvement; while if both pepsin and rennet are lessened it signifies involvement of the fundus.

Cancer of the cardiac end is very infrequent. Fagge, in his reports from Guy's Hospital, says that, in his opinion, almost all reported cases of cardiac cancer have had their origin in the lower end of the esophagus. When they do occur, however, they may remain latent for a long time; but we have cachexia, dysphagia, pain immediately after ingestion of food, with gradual obstruction, oppression, regurgitation; and tumor cannot usually be felt. The blood findings in these cases might be of some value; the blood count is rarely so low as in pernicious anemia; and in some cases of cancer the blood count may be high, even six millions or more. The lower color index, as in secondary anemia, the absence of megaloblasts, and leucocytosis speak for cancer. Some authors place considerable importance upon a differential leucocyte count. Possibly a leucocytosis during digestion is of value.

To summarize: It may usually be considered that epigastric pain related to food, vomiting and localized tenderness are symptoms pointing to ulcer; and if hematemesis be added the existence of ulcer is almost certain. The more acute the symptoms and the shorter the time between their onset and the seeking of advice are points in favor of ulcer; and especially if the symptoms do not subside after a few days in bed with care and diet.

Treatment: Leube says one-half to three-fourths of all cases of ulcer of the stomach will be cured by medical treatment in the course of four

or five weeks' time; cases not cured in that time will not be cured by medical treatment alone. The mortality of ulcer of the stomach is grave, all kinds of cases considered. Out of five hundred cases reported by Bulstrode, of the London Hospital, all the cases admitted, 98 were men and 402 were women, and the total mortality was approximately 18 per cent.

Recurrences are very frequent, in fact in at least two-fifths of the cases which are apparently cured; this not including those cases which have been admitted to the hospital from the complications and sequelæ of gastric ulcer; pyloric stenosis, hour-glass contractions, gastric dilatation, chronic vomiting, adhesions, etc., caused by long-healed ulcers; those cases in which carcinoma was engrafted upon old ulcer not being included. So the percentage of cases of recovery is not nearly so high as might be imagined. Patterson endeavored to follow up a series of cases discharged from the hospital as cured, and out of 72 cases traced 10 were free from symptoms of gastric ulcer after a period of three years. It has been estimated that less than 25 per cent. of the cases admitted to the hospitals have been real cures. Relapse is much less common in private practice. It is estimated that 50 per cent. of all cases in private practice eventually succumb to ulcer or some of its complications.

How does surgical treatment compare with this? Surgeons see the worst cases, and out of 300 cases of various kinds of ulcer and its sequelæ, which had failed to respond to medical treatment, Mayo Robson had a mortality of but 3 per cent.; but this same author states that in his private practice the immediate risk of posterior gastroenterostomy amounted to only 1.7 per cent., and the cases relieved completely of all symptoms were over 90 per cent., a proportion which will be made better as experience increases. Acute ulcer, as a rule, apart from its complications, does not demand surgical treatment; when ulcer relapses and becomes chronic, operation, in our mind, is urgently demanded.

The medical treatment consists in rest, a carefully regulated diet, and medicine. Rest should be absolute, referring to all acute cases. Rectal feeding is theoretically more correct, but in practice it is not always satisfactory. In those cases with acute hemorrhage, rectal feeding is absolutely demanded for a period of two or three weeks. The diet should be bland, easily digested, and given at regular intervals, all solids absolutely prohibited, milk, buttermilk, beef solution, egg-albumin, constitute the main bulk of the diet in all my acute cases; and, indeed, some other cases that refuse operation, as in subacute and chronic cases; here we may add scraped beef, or broiled beef in moderate quantities. Warm fomentations over the stomach are sometimes very grateful.

As regards medicines, not many are needed in these acute cases. Some form of salts, like Carlsbad, which most of our cases get; codein or other opiate, when absolutely demanded for pain; and antacids and sedatives for the pain and absorbent effects. Of these a favorite combination of ours, which meets the indications as well as any, is cerium oxalate, 0.5 gram, bismuth subnitrate, 1 gram, and magnesia carbonate, 2 grams, given in mixed powder immediately after, two or three hours,

or four hours, after food, depending upon the time of pain and the degree of acidity. The patient may be given, in pyloric cases, where there is gastrectasis and considerable vomiting, *nux vomica* or its alkaloid to stimulate motility. Lavage in these cases should be practiced. Silver nitrate is considered a very useful remedy.

We have various methods of treatment, such as the Leube method, the Lenhartz method, whose virtue lies in the continuous administration of concentrated albuminoids, of which eggs is the principal article of food, thereby using up the superfluous HCl. The patient should be told that the treatment should be continued over a period of from two to four months, and that he should be in bed the first half of this period. At the end of this period he should be promptly told, if he is not on the road to good recovery, that his best chances lie in surgery.

The operation preferred to-day is gastrojejunostomy, which I shall not attempt to describe, further than to say that the posterior incision is the preferable, and that the opening in the jejunum should be as near its junction with the duodenum as possible. Mayo's mortality in 307 cases was 6 per cent.; Moynihan's, 4.3 per cent., and in a series of cases by Robson, 3.3 per cent. And in another series of 110 cases operated on by Robson, 101 resulted in complete cure.

VACCINE TREATMENT OF IRITIS—WITH REPORT OF TWO CASES.

DON A. VANDERHOOF, B.L., M.D.
ROCKFORD, ILL.

Although during the present age we are hearing so much in regard to the treatment of certain diseases by vaccines, nevertheless many of us hesitate in regard to using them, not from the fear that they may do harm, but simply because there are so many remedies on the market, of one kind and another, that it is impossible to use them all. We simply use the drugs that we know should give us certain results.

Suddenly we find ourselves up against some obstinate case. Nothing seems to produce the desired results, and things go from bad to worse. Some time ago Dr. W. A. Mann of Chicago mentioned the fact that he considered his results with the vaccine treatment in certain cases very good.

On June 8 H. D. R., a barber by trade, came to the office for eye treatment. His trouble dated back five days, and, although under treatment by a physician, his condition had grown steadily worse. The eye had pained considerable ever since the trouble started; there had also been considerable lachrymation and photophobia.

The day he came to the office he was complaining of considerable pain, both in the right eye and also on that side of his head. Both the upper and lower lids were swollen, and there was deep corneal congestion. Pupil small and round. The tension of the eye was +1 and

the patient complained of a great deal of tenderness during the examination. I used scopolamin in the eye and kept him in the office for about three hours. The tension soon became less, but the pupil dilated very irregular indeed. A few drops of dionin, 2.5 per cent. solution, was also used. He was directed to return home, to use hot applications and remain in a dark room. A laxative was also prescribed.

June 9 pupil was still very irregular, and resisted all attempts to dilate it fully. Pain was severe at times. Same treatment was continued as previously given. June 10 at 3 a. m. he was taken with terrific pains in that eye and through the right side of the head. Hot applications were applied and a cantharides blister used over right temple. Morphin sulphate one-fourth of a grain was given hypodermatically.

Tension was $+1$ all that day, so ordered a solution of dionin, cocain and atropin, to be used every two hours during the day.

As there was no change in his condition that evening I gave him an injection of streptococcus vaccine 30,000,000, which is prepared by G. H. Sherman of Detroit, Mich. June 12 he rested very well during the night, excepting between 4 a. m. and 6 a. m., when he had considerable pain. I saw him about 5 p. m. Found the tension normal, eyelids much less inflamed and the pericorneal injection somewhat less. No pain on pressure this afternoon for the first time. Pupil still very irregular.

From this time on he gained very rapidly, and in a few days he was back at his work much against my wishes. A couple of days after his starting to work the eye became much worse, but I at once gave him another injection of the streptococcus vaccine. The iritis immediately quieted down and has caused no trouble since.

Case 2.—Mr. W. F. D., age 30 years, came to the office on June 2, saying that for five days he had been having considerable pain and lachrymation in his left eye. He had done nothing for it up to the present time. The case I diagnosed as one of simple iritis, and, as it had been troubling him for a few days before requesting treatment, I advised absolute quiet in a dark room, using scopolamin, dionin and hot compresses, besides advising him to pay strict attention to his elimination.

The symptoms of iritis were all present here, so I will not enumerate them. Up to July 11 there had been some improvement. Pain at night had almost disappeared.

On June 12 I gave him an injection of streptococcus vaccine 30,000,000. The next afternoon quite a change for the better could be seen. The pericorneal injection was less intense, and he could now open his eye just a little for the first time in a number of days. The case from this time on recovered rapidly. Nothing new developed and only one injection of vaccine was used.

These two cases are simply examples of the good results which we have frequently derived when using the vaccine treatment. The results have been especially good in acute streptococcus and staphylococcus infections of the ear, nose and throat. My results have been negative in chronic suppurative conditions of the sinuses. Whether the cause of

my failure to get any results is due to not having carried the treatment long enough or is due to the pathological conditions present, I can not say.

I do not want to give the impression that I am over-enthusiastic in regard to the treatment in these cases by vaccines, especially when the number of our cases has been only about fifteen, but I do consider this treatment very valuable indeed, whether in diseases of the eye, ear, nose and throat, or even in diseases of any part of the body. As the cost is very small, and as the vaccine keeps for months without deteriorating, they should be kept in the office of every physician, especially the country practitioner. The vaccines can be given with an ordinary hypodermic syringe, care being taken that both the needle and syringe are sterilized before using.

500 Wm. Brown Building.

THE EYE IN RELATION TO GENERAL DISEASES.*

WILLIAM E. GAMBLE, B.S., M.D., CHICAGO.

In America, the curriculum in many of the medical schools is giving short shrift to the examination of the normal eye and to the study of diseases of this organ.

Laboratory studies, of more or less practical value, have crowded a study of the eye into the background. The result has been that the average general practitioner knows but little of the external diseases of the eye, and less of the intra-ocular, and therefore is unable to interpret their meaning in relation to diseases of the general organism.

Such a state of affairs, in my judgment, can not long exist; and, indeed, the tide is turning. The better medical schools are requiring definite, systematic study of the eye as an essential condition to graduation, and our best internal medical men now have a working knowledge of the ophthalmoscope, and interpret the diseases of the various coats of the eyeball in relation to general diseases, as a routine.

This is a renaissance. Following the discovery of the ophthalmoscope by Helmholtz, in 1851, for a number of years, great enthusiasm was manifested among medical men in the study of diseases of the eye. They believed that the ability to see, by the aid of the ophthalmoscope, the retina and optic nerve, the retinal artery with the blood coursing out through into the retinal veins would give them data by which they could interpret most diseases of the brain and many diseases of the general organism. This, let me say, was realized to the greatest extent in the clinical observations of diseases of the fundus and outer coats of the eye by that master clinician, von Graefe.

The general practitioner was much more adept in the use of the ophthalmoscope in those days than he is to-day. Gowers, in the latest edition of "Medical Ophthalmoscopy," bears me out in this statement, as regards his own country, England. He says, "When this book was written, twenty-five years ago, the subject with which it deals was more familiar to physicians, who constantly used the ophthalmoscope, than to ophthalmic surgeons; but the position of the two has been to some extent reversed during the years that have followed in consequence of the sedulous use made of the opportunity for the investigation of medical cases by those who devote themselves to the study of the eye."

Many of the diseases of the various tissues of the eye are due, as are those of other parts of the organism, to micro-organisms, or their toxins, and yet, the

* Read before the West Side Branch, Chicago Medical Society, March 18, 1909.

student who loses sight of the histologic basis of disease, and especially the embryologic relationships of the various tissues of the eye to those of the general organism, will be much handicapped in interpreting the disease pictures seen in this organ.

The eye is made up of the two primitive embryologic layers, ectoderm and mesoderm. The crystalline lens and the epithelial layer of the cornea and optic nerve represent the ectoderm in the eye, and therefore are genetically coordinate with the brain, the cord, the nerves, the enamel of the teeth, hair, nails and sensory epithelia, and we should expect that diseases of these various tissues would show in the eye, whether the cause be micro-organisms, disturbed metabolism or other causes, and so they do. In cases of rachitis we commonly find disturbance in the enamel of the teeth, known as "Horner's teeth" in conjunction with laminar cataract.

In herpes zoster and some other forms of vesicular keratitis, separating the epithelial layer from the cornea propria, in addition to anesthesia of the cornea, evidences disease of the gasserian ganglion. Other evidences of this relationship might be given. The same might be said of the mesodermic tissues in the eye; for example, the changes in the retinal vessels in albuminuric retinitis complicating chronic Bright's disease. These patients are what Schmeichler has aptly termed "connective tissue individuals," persons whose highly specialized organs and blood vessels become the seat of connective tissue processes.

Microscopic plants and animals and their toxins, affecting the organism in general, oftentimes manifest themselves in the eye. The conjunctivitis of measles is one of the prodromal symptoms of this disease. Rheumatism, scarlet fever, typhoid fever and influenza have this complication frequently. Disturbances in metabolism as well may cause disease of the conjunctiva. I shall never forget, in the earlier part of my professional career, trying to cure a case of conjunctivitis in a long-standing case of gout by instilling sulphate of zinc into the eye. With each recurrent use of the medicine the patient became worse, and it was not until long after I was discharged that I appreciated the fact that this conjunctivitis was due to general disease and that my attempt to treat it as though it were a local affection was the cause of my failure.

The ophthalmologist often sees cases of interstitial keratitis of mild or severe type, this being the only clinical evidence of inherited lues. This knowledge, of course, should be in the possession of the family physician, for without it he will be unable to treat his patient intelligently.

Most general physicians have seen systemic gonorrheal infection especially manifest in the joint or joints, complicated by iritis, and this complication may be the only evidence of systemic gonorrheal infection in the case.

It is during the second stage of syphilis, that is, during the stage when the spirochæta pallida are principally circulating in the blood, not yet having invaded the solid tissue to any great extent, that the iris becomes inflamed, and, indeed, a diagnosis of syphilis in the second stage can be made out oftentimes by the syphilitic papules ranged around the pupillary border in contradistinction to the nodules in tuberculosis, which are near the root of the iris or in the mid-region of the iris. The early diagnosis of syphilitic iritis means, with the heroic use of unguentum hydrargyri, a saved eye, and the organism is at once put in the best defense against this protean enemy.

Tuberculosis of the iris is not so pathognomonic, but yet its location in the mid-region of the iris and at the root of the iris, the chronicity of the disease, and the color of the tubercles, which are a whitish yellow color, may be the only evidence of tubercular lesion present in the organism.

A physician can often clear up the mystery of disease by discovering that the pupils dilate irregularly when a mydriatic is used, there being adhesions of the iris to the lens or the finding of pigment spots on the anterior surface of the lens, which commonly means either syphilis or rheumatism.

It is probable that future studies will reveal that many other diseases of the eye, the etiology of which is obscure at present, are due to the toxins of micro-organisms or possibly to the micro-organisms themselves. I refer more especially

to phlyctenular diseases—trachoma, vesicular diseases of the cornea, scleritis and episcleritis, some forms of iritis, optic neuritis and possibly glaucoma.

The study of the eye in diseases of the brain is especially valuable. The student should not lose sight of the fact that in looking at the optic nerve he is looking directly at the brain, and the changes occurring in it represent more or less faithfully the intracranial or cord changes. It is my purpose here only to mention the more common, gross lesions; for example, optic neuritis in descending meningitis, choked disk in brain tumor and in brain abscess, optic atrophies as sequelæ of meningitis.

It is scarcely within the province of this paper to discuss the so-called "spinal cord diseases" manifesting themselves in the eye, as atrophy of the optic nerve, or as disturbance in the function of its musculature; for example, Argyll-Robertson pupil, or paralysis of the extraocular muscle, yet the great value of these symptoms in making a diagnosis is generally appreciated. Indeed, in brain diseases of whatever kind, the neurologist depends on the eye complications in making a prognosis as well as a diagnosis.

While it is true that diseases of the organism frequently complicate the eye, as far as we know, rarely, if ever, do organic eye diseases spread to other organs, excepting pyogenic processes resulting from perforating wounds and malignant disease of this organ. The same can not be said of the various functional diseases of the brain.

The extreme division of labor to which our urban population is subject, compelling the constant use of brain and eye in one particular task, produces brain fog and fatigue of the eye in persons of healthy, normal eyes. Those who are handicapped by having eyes of abnormal length, either too long or too short in any or all of their meridians, are more greatly fatigued at the end of the day. Sooner or later, nervous symptoms develop, the most common of which is headache over the brow or in the temples or in the occipital region, and occasionally headaches akin to neuralgia; and rarely migrainous attacks are thus precipitated.

The relationship of ocular fatigue to headache is now fully appreciated by most of our American physicians. More than 50 per cent. of my practice is treatment of headache cases referred to me by physicians. While this discovery has not directly saved life, I scarcely now can recall one during the last century that has relieved more distress.

This is an American discovery. Dr. Wm. A. Thompson and Dr. Weir Mitchell should receive the lion's share of the praise. There are physicians in our midst who do not believe in the relation of eye strain to headache and other neuroses, just as there are those who do not believe in vaccination for smallpox or the anti-toxin treatment for diphtheria, but the advice can safely be given to these dissenters that the sooner they make use of the knowledge that eye strain is a source of headache the better it will be for their professional reputation.

Foolish and irresponsible claims that have been made by some ophthalmologists as to the etiologic relationship of eye strain to nervous diseases, some of them claiming to cure almost every nervous disorder by glasses, have partly been responsible for this minority attitude, and the writings of some neurologists in saying that glasses are of only temporary value, are equally as far from the truth. Time alone will cure these evils.

In this connection let me say that I believe the Snellen type chart which is hung upon the walls of the physician's office should never be used as a means of determining whether a patient is suffering from eye strain headache. As a matter of fact, the reading of the chart, whether the patient is able to read all or any part of it, has nothing to do with the question. Eye strain is found as often where the vision is normal as where it is reduced. It is solely a question of the over-use of the ciliary muscle or insufficiency of an extraocular muscle, and not acuity of vision. The family physician can, by process of exclusion and by the history of the case, usually make out a correct diagnosis, but in the final analysis the refraction must be investigated.

Proper glasses for a young person can not be prescribed without the patient first having used atropin or some other cycloplegic in the eyes. It is not far distant, in my opinion, when a scientific, systematic investigation of the eyes of

all school children will become a requirement for admittance to the schools, in place of the perfunctory and unsatisfactory method now in use. At the present time, if the patient can read all the letters on the card, he passes muster.

Not only children, but adults are thus allowed to suffer with preventable headaches, and attacks of hysteria and neurasthenia are precipitated which might be prevented from developing in these unstable nervous organizations.

I wish to say that I believe that the difficulty of fitting glasses is not generally fully appreciated by physicians. Accurate measurement of the refraction of the eye, so necessary to prescribing proper glasses, is a procedure requiring a long apprenticeship and the possession of a conscientious desire to do one's best work at all times; for it is the experience of ophthalmologists that the correction of a quarter of a diopter of astigmatism may cure headache and other nervous symptoms.

And, in conclusion, I hope I will not be taxing your patience too much by bringing to your attention a disorder which is yet misunderstood by many of our best physicians. I refer to squint (concomitant convergent strabismus) in children. This is commonly looked upon as an eye disorder. In many cases it is more a brain fault than an eye disorder. At bottom in most instances these are cases of faulty development of the brain, i. e., of the visual tracts and fusion centers in the cortex, and not a trouble *per se* with the muscles of the eye, as is yet too commonly believed. It is common knowledge that cataract in childhood must be removed early, before six years of age, the earlier the better, in order that the patient will have a useful eye afterward. Cataract occurring in later life can be removed at any time, even fifty years after, with good sight remaining.

But why speak of cataract in the child in connection with squint. In cataract in the young child, the brain end of the visual apparatus does not develop because the child *can not use the eye*; in squint, because the child by a trick of the mind suppresses the image and therefore *does not use the eye*. Like the cataract case it must be made to see with the squinting eye, the earlier the better. I have two cured cases, treatment having begun as early as 16 months of age. If treatment is put off until 7 years of age the squinting eye is amblyopic—blind—for useful purposes. Now as to the treatment, the squinting eye is usually handicapped by being a short eyeball and therefore needs lenses to correct this deformity. Rarely the eye is so defective that it is not amenable to developmental treatment. Operation is then advisable to improve the cosmetic effect. In the majority of cases, after the fitting of glasses, the treatment consists in compelling use of the squinting eye by bandaging up the good eye. Sometimes the instillation of atropin in the good eye will blur it to such an extent that the patient will use the squinting one. The brain cortex is whipped into use by means of the amblyoscope, a sort of stereoscope, thereby developing the fusion centers, thus causing more or less normal development of the central visual apparatus and consequent correction of the deformity. It is my opinion that there are many times the number of practically blind eyes from improper, or rather non-treatment, of squint than are due to ophthalmia neonatorum.

EYE DISEASES ASSOCIATED WITH NASAL AND NASOPHARYNGEAL DISORDERS.*

THOMAS FAITH, M.D., CHICAGO.

That there is an association or relationship existing between nasal and eye diseases is a fact which is old and well established, and one which every careful observer who has worked in these special fields of medicine has noted time and again, and such an association is, moreover, readily anticipated when one considers the close anatomic relationship between these organs. They have the same

* Read before the West Side Branch, Chicago Medical Society, March 18, 1909.

nerve supply, the same mucous membrane, and to some extent the same vessels carrying blood to and from their tissues, as well as an indirect lymphatic connection. Then, too, they lie in such close proximity to one another that pathologic processes may readily extend from one organ to another by contiguity, and though the conformation and arrangement of these structures admit of the frequent extension of diseases from the nose to the eye, the reverse is by no means the case.

To understand this latter fact, we must remember that the drainage from the eye by way of the lachrymal apparatus is into the inferior meatus of the nose; that the submucous plexus of veins in the nose is drained partly into the ophthalmic vein and partly into the pterygoid plexus with which the inferior ophthalmic vein anastomoses; that these veins have no valves, and also that the lymphatics of the nose and orbit both terminate to a large extent in the internal maxillary and parotid lymph glands. Another reason for this fact is the size and proximity of the large air spaces known as the accessory sinuses of the nose, which almost surround the orbit, and from which disease may readily enter that cavity, either by direct extension or through the blood stream. In the light of these facts, then, it is reasonable to inquire as to what diseases of the eye we would naturally expect to be associated with disease of the nose and nasopharynx.

First, we would expect obstructions which involved the inferior meatus to produce obstruction to the normal flow of tears resulting in epiphora, and if unrelieved, later dacryocystitis, chronic conjunctivitis, or corneal ulceration, and we might also expect extension of infection by continuity through this route.

Second, we would expect obstruction which would interfere with the circulation to cause congestive attacks or congested conditions of the ocular tissues, resulting in photophobia, lachrymation, and various subjective symptoms, including possible interference in the working ability of the eye, or edema of the lids.

Third, from obstruction to the lymph flow, slow metabolic changes with disturbance of function and nutrition, or edema.

Fourth, from disease of a neighboring sinus with retention of pus, or disease of its bony wall, we might expect perforation of the orbital wall, with orbital abscess, or extension of inflammation, resulting in orbital cellulitis, or a local focus of inflammation involving a muscle, nerve or blood vessels lying at some particular point in contact with the sinus wall.

To these various conditions, which might reasonably cause associated eye disorders, we may add reflex disturbances caused by contact of the nasal mucous surfaces which could produce a train of symptoms similar to what would be produced by introducing a foreign body, probe or speculum into the nose, or what sometimes follows cauterization of a turbinal (i. e., lachrymation, photophobia, congestion of conjunctivæ and eye pain), and other reflex disturbances, which, if perpetuated, might be responsible for or lay the foundation for an active inflammation.

Having thus theorized as to what might occur under the above named conditions, let us see what confirmation we may obtain from clinical observation.

Grünwald,¹ writing on this subject, says: "In the eye it is the lachrymal apparatus that most commonly participates in nasal affections. Even the irritation attendant upon introducing a speculum or probe into the interior of the nose is immediately followed by reflex lachrymation in the eye of the same side, and in a similar way swelling at the orifice of the lachrymo-nasal duct in the inferior nasal meatus may lead to obstruction of the lachrymal flow and epiphora."

Wood² said that "the ocular irritation that results in the over-production of tears or their insufficient drainage, or both, quite commonly originates in nasal disease, and that all cases of chronic lachrymal disease should have a thorough nasal examination."

The nasal conditions which are most likely to cause lachrymal obstruction are enlargement or deformity of the inferior turbinal or deformity of the septum,

1. Grünwald: Atlas of Mouth, Pharynx and Nose, p. 29.

2. Wood: Ophthalmology, 1906, p. 187.

crowding the turbinal against the lateral wall of the nose, though ozena and sinus disease have been known to cause suppurative disease of the lachrymal sac. As illustrative of the interference with blood and lymph circulation, we have the old and well known observation of the dependence of phlyctenulæ upon nasal obstruction in the cases of adenoids or enlarged tonsils, and Grünwald says that chronic inflammation of the eyelids and phlyctenular keratitis, which are a part of the symptom-complex of scrofula, are practically always of nasal origin. The relief from phlyctenulæ which so often follows the removal of adenoids or tonsils, or both, may not, however, confirm this statement, that the improvement is through improved local circulation, as the local improvement may only be a part of a general improvement due to improved breathing.

Acute and subacute attacks of conjunctivitis are frequently associated with nasal obstruction, and though no epiphora exists in these cases they may be due partly to interference with drainage and partly to impeded or contaminated circulation; and Vergeley¹³ reports one case of phlegmon of the orbit directly following acute tonsillitis, which, if properly judged, certainly gives evidence of contamination of the circulation.

Illustrating extension of disease from neighboring sinuses, we have the oft-reported cases of orbital abscess and cellulitis, examples of which are cited by Gutmann,⁴ and many others, due either to perforation or extension of inflammation through a thin sinus wall (particularly from the ethmoidal cells and occasionally from the frontal sinus), and encroachment of a sinus upon the orbit (again, usually, the ethmoids) by distention of the sinus cavity, with mucocele, but without perforation producing exophthalmos, as reported by Cirincione,⁵ Johnson and others. Posey,⁶ Risley,⁷ and others have associated certain cases of edema of the eyelids with or without slight proptosis, with diseases of the accessory sinuses, and cases which have in some instances proven later to be thrombosis of the cavernous sinus due to sphenoidal disease have been reported by St. Claire Thomson.

In two instances with which the author has come in contact a sinus has ruptured into the lachrymal sac, producing lachrymal mucocele, a fact also recorded by Green,³ of St. Louis.

Posey⁶ and others have reported cases of ocular palsies which were attributed to sinus disease and relieved by their treatment. These cases are probably explained by extension of the disease to a muscle or nerve through a thin-walled sinus, or by a toxie peripheral neuritis.

Onodi,⁸ Parsons,⁹ Risley,⁷ Posey⁶ and many others have reported cases of optic neuritis of accessory sinus origin; and Onodi⁸ explains that the anatomical formation of the optic canal may allow of extension of disease from either the posterior ethmoidal cells or the sphenoidal sinuses in certain cases.

To the above-mentioned conditions may be added cases of choroiditis, iritis, glaucoma, etc., which have been reported by various individuals as having a direct connection with some nasal or nasal accessory sinus disease, but in which the element of coincidence must always be considered, as satisfactory explanation or demonstration by postmortem, etc., have not been given.

Again, various superficial diseases of the cornea have been reported by Ziegler¹⁰ and others in which the source of the infection has been assigned to the accessory cavities of the nose, and the route of passage the lachrymal tract. Ziegler believes that 90 per cent. of superficial corneal lesions take their origin directly from pre-existent pathologic processes affecting the intranasal tissues and secretions.

3. Green: *Ophthalmic Record*, June, 1906.

4. Gutmann: *Zeit. f. Aug.*, 1906, xv, 403.

5. Cirincione: *Palermo; La Clinica Oculistica*, January, 1907.

6. Posey: *Journal of Eye, Ear and Throat Diseases*, March and April, 1905.

7. Risley, S. D.: *Penn. Med. Journal*, June, 1904.

8. Onodi, Professor (Buda Pesth): *Brit. Med. Jour.*, Nov. 5, 1904.

9. Parsons, Hubert: *Dis. Eye*, p. 401.

10. Ziegler, S. Lewis: *American Medicine*, April 9, 1904.

Fuchs¹¹ describes a superficial puncture keratitis which is accompanied by acute conjunctivitis and catarrh of the air passages, which soon passes over the irritative stage, but which leaves spots of infiltration in the cornea for months. He does not explain the *modus operandi* of its occurrence.

The clinical reports of reflex disturbances of the eye of nasal origin are very numerous indeed, and almost every known disease of the eye has at times been attributed to reflex nasal irritation, and though the literature is voluminous and not always convincing, some good facts have been gleaned from the mass; and here, again, the causes attributed are nasal obstruction and sinus affections—both suppurative and non-suppurative. Ziegler,¹² writing on the nasal origin of reflex neuroses, says: "We must accept as an infallible rule the dictum that pressure contact in the nose will always excite some reflex disturbance when any hyperesthetic area is impinged upon." Here, of course, he refers to contact of turbinals, especially the middle turbinal with the septum, or irritation of a turbinal by a septal spur or ridge, and contact with the septal tubercle. The ocular manifestations of these irritations are supraorbital neuralgia, eye pain, lachrymation, conjunctival congestion, burning and smarting of the lids, tiring of the eyes, blurring of vision and inability to obtain correcting lenses which give relief, the patient going about from one oculist to another, but without help. These cases Ziegler¹² terms nasal asthenopes, and he further says: "They will never find ocular comfort until the intranasal lesion is corrected."

This same class of cases is cited by Wood² as being of reflex nasal origin, but Wood thinks the accessory sinuses are many times the principal offending structures. We may, however, rightly conclude that nasal deformity is at the bottom of most such cases, as without deformity and resulting obstruction to drainage and ventilation of these spaces, chronic sinus disease rarely occurs.

In conclusion, we may say that nasal and nasopharyngeal disease may be responsible for headaches of an ocular type, supraorbital neuralgia, localized pain in the eyes, asthenopic symptoms, vascular disturbances, congestion of conjunctiva, edema of lids, exophthalmos, orbital cellulitis and abscess, optic neuritis—usually retrobulbar, ocular palsies, and phorias, keratitis, phlyctenulæ of either the conjunctiva or cornea, and diseases of the lachrymal apparatus.

103 State Street.

THE NATURE AND CAUSES OF NASAL MUCOUS POLYPI.

EDWARD F. GARRAGHAN, A.M., M.D., CHICAGO.

Assistant Professor Rhinology and Oto-Laryngology, Chicago Polyclinic.

The etiology and nature of nasal polypi have given rise to such varying views among rhinologists that a brief review of the literature on this subject with special reference to the relation of polypi to the nasal accessory sinuses seems to be opportune. The rhinoscopic appearance of the ordinary nasal polypus is familiar and its description is therefore needless, the study of the nature and origin of polypi, however, is still progressing and of interest.

Nature of Polpi: The nasal polypus is often but erroneously spoken of as a myxoma or mucous tumor. Greville Macdonald,¹ after examining hundreds of specimens, says that he has never succeeded in finding a true myxoma cell in them. Allen,² in 1893, after a thorough study of the subject, claimed that "polypi are not myxomata; a myxoma is a tumor composed of embryonal connective tissue. It is the pathological reproduction of a tissue which occurs physiologically in the embryo. Such a tumor consists of a firm network of anastomos-

11. Fuchs: *Textbook of Ophthalmology*; Third Edition, English, p. 199.

12. Ziegler, S. Lewis: *New York Medical Journal*, Nov. 7, 1908.

13. Vergeley: *Jour. d. Med. d. Bordeaux*, July 19, 1896.

* Read before the Chicago Heights Branch of the Chicago Medical Society, April 6, 1909.

1. Macdonald, G.: *International Clinics*, 1895, vol. iv, series 4.

2. Allen, S. E.: *Cincinnati Lancet Clinic*, 1893, N. S. xxx.

ing stellate cells, the meshes thus formed being filled in with a homogenous granular substance rich in mucin. The fluid of the ordinary soft nasal polypus is not a solution of mucin but of serum albumin." In furtherance of the proof of these statements he has made certain tests. "Mucin solutions do not coagulate on boiling, the vitreous humor of the eye remains clear after boiling. The clear fluid squeezed from nasal polypi does coagulate on boiling. Mercuric chlorid solution added to a solution of mucin does not produce precipitate. Added to fluid from polypus a precipitate is produced." Both Hopman and Zuckerkandl have demonstrated the albuminous nature of the fluid in ordinary nasal polypi.

Location of polypi in the nasal cavity: Casselberry,³ in 1894, refers to Zuckerkandl's researches on cadavers demonstrating that two-thirds of all nasal polypi originate from the middle meatus beneath the middle turbinated body and two-third of their number take origin from the edge of the hiatus semilunaris, which is a crescentic opening into the infundibular space into whose upward and downward continuation enter, respectively, the frontal and maxillary sinuses, and which is located high up beneath the middle turbinated body. Voltolini and writers of an early date placed the situation of polyps far above on the upper walls of the nasal cavity. The sections of Zuckerkandl have shown that in most cases the attachment is to be found on the lateral nasal wall and especially on the ethmoidal (middle and superior) turbinated bones and the lips of the hiatus semilunaris and edges of the ostia ethmoidalia and maxillaria. In practice it is well to have in mind the middle turbinated bone and the region it covers. Jonathan Wright⁴ has found that the majority of polyps spring from the anterior edge of the middle turbinate or edges of the hiatus semilunaris, next from the upper and posterior portion of the middle turbinate, and, lastly, that they may be found in the interior of a bulbous middle turbinate or about the outlets of the accessory sinuses. Very rarely polypi originate from the septum and inferior turbinate bone. On examination of a specimen in the region of the hiatus semilunaris it will be found that it is very difficult, yet very necessary, to see and remove beds of small polyps from the crevices of the lateral wall in the middle meatus referred to. Mucous polyps may also appear in the antrum of Highmore, and in the cavities of the frontal, ethmoidal and sphenoidal sinuses. Zuckerkandl observed them in the antrum of Highmore as pedunculated outgrowths of its membrane, as bands stretched across the walls of the sinus and as more diffuse hypertrophies.

THEORIES AS TO PROBABLE CAUSES OF NASAL POLYPI.

There are various theories as to the probable causes of these growths. In the earlier days polypi were looked upon as neoplasms, which simply needed removal by various methods to effect a cure. As time advanced opinions have changed considerably and the nasal polypus is at present considered an inflammatory product and not a true tumor, and rhinologists of the present day are practically agreed that the removal of the polypi is but the first step in the cure of an affection underlying its production. Casselberry, in 1894, declared that it was evident that nasal polypus is usually a symptomatic manifestation of a form of degeneration of the ethmoidal muco-periosteum which frequently involves not only the middle turbinate bone but also to some degree the ethmoidal cells, and for convenience he called this condition ethmoiditis. Again, in 1892, he says that hypertrophic rhinitis or that stage or form of true nasal catarrh which is characterized by enlargement of the nasal tissues, is invariably associated with nasal polyps and usually stands to it in relation of cause and effect. He further states that after removal of polyps the condition which has caused or produced them must be relieved, and in the majority of cases this will be found to be hypertrophic rhinitis:

There seems to be a close relation existing between the ethmoiditis of Casselberry and the formation of nasal polyps. Bosworth⁵ mentions three forms of

3. Casselberry, W. E.: New York Med. Jour., 1891, Vol. liv; International Clinics, 1892, Vol. iii, N. S. II.

4. Wright, J.: Am. Jour. Med. Science, 1898, N. S. cxvi.

5. Bosworth: Text-book; Diseases of Nose and Throat.

ethmoiditis: (a) Extracellular myxomatous degeneration, (b) intracellular myxomatous degeneration, and (c) purulent ethmoiditis, which may or may not be associated with myxomatous degeneration of the ethmoid, but which usually is associated with nasal polypi.

Jonathan Wright has described the distinction between nasal polypi and true myxoma and believes that nasal polypi are of inflammatory origin and ascribed to hypertrophic rhinitis. Bosworth believes that purulent ethmoiditis with polypi should be regarded as a sequel to simple polypoid degeneration and that suppuration of the ethmoid cells occurs only after polypoid tissue has accumulated sufficiently to obliterate their natural drainage channels. He further states that the natural result of a damming back of a mucous secretion is the development of a purulent inflammation. As there is no pathologic proof back of his statement and there is no striking clinical evidence to support it, it may be regarded as at least unproven. Grünwald holds the extreme view that polypi are always secondary to empyema of the accessory sinuses of the nose, while Woakes⁷ is firm in his conviction that mucous polypi are caused by necrosing ethmoiditis. This is undeniably one of their causes, but certainly a rare one. Jonathan Wright contends that nasal polypus is the direct result of suppuration in the cells or the sinuses communicating with the nose or inflammation of the periosteum covering the middle turbinate dependent on previous purulent inflammation within the bone itself.

Grünwald holds to the opinion that nasal polypi are almost pathognomonic of sinus suppuration. In 33 cases of polypi he found evidence of sinus suppuration in 28. He found suppuration most commonly in ethmoid cells either alone or together with other sinuses. He states that sinus suppuration was found in 82 per cent. of polyp cases, while the remainder showed no abnormal secretion in the nose. Alexander, in 104 cases, found suppuration in only one-third. Kronenberg, in 44 carefully observed cases, found suppuration in 27 and no abnormal secretion in 6. McBride,⁸ Chiari,⁹ Skrodzi and others found suppuration in still smaller percentage. Lack¹⁰ claims that suppuration is certainly not present in more than 60 per cent. and can not be demonstrated with certainty in more than 30 or 40 per cent. of polyp cases.

As early as the seventeenth century it was observed that the removal of a lamina of bone was the best means of preventing a recurrence of nasal polyp. In recent times Woakes was the first to draw attention to this. He claimed that polyp was not a disease *per se* but only a prominent symptom of a disease of the ethmoid bone, which he called ethmoiditis.

He described a series of morbid changes beginning with fibrosis; going on to obliteration of the arteries and absorption of the bone with development of bony cysts, polypus and granulation tissue, until finally interstitial death of the bone as necrosis results. He described the clinical features of the disease as, first, an enlargement, then a cleavage of the middle turbinate with swelling of the overlying mucous membrane; from the cleft in the bone polypi might project. A fine probe inserted into the cleft would detect bare, friable, carious bone, which might also be found by passing the probe under the turbinate into the anterior ethmoid cells or above it into the posterior ethmoidal cells. The clinical evidence was supported by microscopical examination. The condition described is certainly not a usual or frequent one.

Thurston found bone disease in three pieces removed by Woakes; Martin found twenty portions of bone—ten had absorption of bone. These observations have been much disputed. Lack is a strong advocate of the theory that bone disease is the chief factor in the formation of nasal polypi. In 1903 he claimed that "bone disease is a constant concomitant of nasal polypi," and more recently he

6. Grünwald, L.: Treatise on Nasal Suppuration, 1900.

7. Woakes, E.: British Medical Journal, 1885, i, 701; London Lancet, 1885, i, 619.

8. McBride: Tr. Med. Chir. Soc., Edinburgh, 1886, N. S. v.

9. Chiari, C.: (Trans.), St. Louis Courier Med., 1885, Vol. xlii, xiv.

10. Lack, H. Lambert: Diseases of Nose and Accessory Sinuses, 1906.

says: "Bone disease is a constant feature of nasal polypus; polyi, in fact, may be regarded as circumscribed edematous infiltrations of the nasal mucous membrane the result of osteitis in the underlying bone."

Zuckerkindl found bone underlying polypi usually healthy, except for changes due to hyperplastic periostitis. Luc found no evidence of bone disease in two cases and Zuckerkindl and Yonge¹¹ have carefully examined the bone to which nasal polypi were attached and found no definite bone disease. Yonge collected a number of specimens in which a piece of bone was removed with an attached polypus and submitted some of them to an expert pathologist for examination and report. The report showed that in none of the sections submitted to the pathologist were any signs of rarefying osteitis to be detected; a few gave evidence of periostitis. Others state that, as a matter of clinical evidence, they have never seen definite necrosis of the ethmoid in cases of polypi; and others again state that bone changes occur in a small percentage but that they are the result and not the cause of polypi.

My observations lead me to believe that nasal mucous polypi are the result of chronic inflammation which in certain cases produces the edematous tissue hypertrophy of the ethmoid structures called polypus formation, and that not infrequently softening and absorption of the bone of the ethmoidal cells and ethmoidal turbinates takes place.

In order to produce polypi the inflammation must exist in the upper portions of the nasal cavity whose walls are chiefly formed by the ethmoid bone and its processes. The exciting cause undoubtedly may be suppuration of some one of the nasal accessory sinuses. But the contentions of Grünwald, who maintains that nasal polypi are almost pathognomonic of sinus suppuration and of Woakes, who holds to the opinion that mucous polypi are the result of necrosing ethmoiditis, seem to be too radical, and while sinus suppuration is sometimes found with the condition of nasal polypi and while we occasionally find ethmoidal necrosis under the same conditions, nevertheless, sinus suppuration or necrosing ethmoiditis are not frequent enough to be classed as the almost exclusive causes of nasal mucous polypi. It seems to me that in predisposed patients the reverse condition of suppuration in the sinuses may depend on the presence of polypi in the nasal cavities, but is by no means a necessary result of them. In such instances, if the sinuses become inflamed and secrete mucus freely as in an acute cold, the discharge is dammed back by the obstructing polypi and stagnating, becomes septic and leads to suppuration due to infection with the pyogenic germs always present in the nasal cavity. In such cases the suppuration may be truly said to be secondary to the presence of nasal mucous polypi. It is, however, certainly not a very frequent occurrence, for polypus patients do not seem especially liable to acquire acute or chronic sinuitis either of the frontal, maxillary or sphenoidal sinuses.

In conclusion, I would say that the presence in the nasal cavity of mucous polypi is an indication of possible disease of some one of the accessory sinuses of the nose, that where such disease exists, in the majority of cases, it is a chronic ethmoiditis.

Nasal polypi are not necessarily dependent upon suppuration in the accessory cavities of the nose, although they are sometimes found associated with such suppuration. Suppuration in the nasal sinuses may result from the presence of mucous polypi in the nose. Nasal polypi should be considered as a symptom of a disease which in most cases demands more than the simple removal of the polypi to effect a permanent cure. In the majority of instances, after the removal of the polypi, which is best performed by means of the cold wire snare and punch forceps, the thorough removal of all diseased or carious bone which may be found in any of the nasal sinuses is absolutely essential to the prevention of the recurrence of nasal polypi.

11. Yonge, E. S.: *Polypus of the Nose*, London, 1906; *Med. Press and Circ.* (London), 1907, N. S. lxxxiv.

THE TONSIL QUESTION.*

RICHARD H. BROWN, M.D., CHICAGO.

Associate Clinical Professor Diseases of Nose, Throat and Ear, Medical Department,
University of Illinois.

"To be or not to be, that is the question." Shall these peculiar glands that we find in our throats be allowed to remain where they grew to perform whatever function Nature assigned them, exposing us to whatever dangers their peculiar formation invites or shall we treat them as diseased parts, as a menace to the organism and to be removed whenever possible as we remove malignant growths. This is a question that at the present time commands the attention of all throat specialists and deserves the most careful consideration by every competent doctor.

There have been endless speculations and investigations during the last century regarding the physiology of the faucial tonsils. It is needless here to go over this ground save to say that nothing definite has been discovered. That the lymphatic tissue surrounding the tonsillar crypts has the same function as other lymphatic glands seems to be apparent, but the physiology of the crypts themselves is not so apparent, or, at least, the necessity of their secretion is not understood. Dr. Bosworth, in discussing the matter, rather dryly states that perhaps "the reason why so little light has been shed on this question is that the investigators have been trying to discover the physiological functions of a pathological lesion," and again: "From a practical point of view there are no tonsils in a healthy throat." Another investigator, one of the conservative men of our specialty, says that "practically every tonsil that is noticeable in the human throat is pathological."

While we know so little about the physiology of the tonsils there is very general knowledge regarding their pathology, and diseases of the tonsils constitute an important part in the practice of most doctors.

There is the tonsillitis that precedes or accompanies the exanthemata. There is liability to tonsillitis in every inflammation of the respiratory tract from rhinitis to phthisis. It accompanies many diseases of the alimentary tract and of the skin and insists upon recognition in certain general diseases, notably syphilis and rheumatism. In short, there is liability to inflammation of the tonsillar tissues in almost any infections that affect other tissues of the body.

According as we look upon this throat condition as preliminary, possibly causative, or merely concomitant does this tonsil question assume greater or less importance.

In syphilis, certainly, there is no suspicion of the tonsils acting as a port of entry, and the vast bulk of evidence would absolve them from the causation of the great majority of skin and intestinal disorders. But there is an open question here. There is no *a priori* reason why the infective cause of acne, for instance, should not originate in the tonsils nor that stomach troubles might not be occasionally caused by swallowing infectious pellets from tonsillar crypts.

In the catarrhal inflammations of the respiratory tract, similarity of tissue would naturally account for simultaneous inflammation of the mucous membrane of the tonsils and surrounding parts. Right here we must consider the peculiar anatomy of the tonsil which may lead to results of far reaching importance and brings suspicion that the glands may be ports of entry for numerous diseases.

As is well known to all physicians, the faucial tonsil is not a single gland, but a collection of ten or a dozen glands forming the so-called crypts of the organ. These crypts dip down very deeply, frequently three-quarters of an inch in a moderately large tonsil. They are surrounded by lymphatic tissue similar to that of other lymph nodes. We have, instead of the minute glands of the ordinary mucous membrane draining through lymph channels into a distant lymphatic, a number of large pits where the mucous membrane dips down into the lymphatic substance itself. These pits are capable of holding an immense

* Read before the West Side Branch, Chicago Medical Society, March 18, 1909.

amount of infective material but are so arranged that, during swallowing, they may be emptied as the tonsil is squeezed between the muscle of the anterior and posterior pillars and the superior constrictor. When they all are so emptied no danger need be apprehended as the tonsil keeps itself drained. On this account the simple hypertrophied tonsil whose crypts all open on the face of the organ is the least harmful kind that we meet. In probably a larger proportion of cases it is found that the tonsil does not protrude between the pillars with clear crypts but that the upper and front parts are covered with a fold of membrane derived from the anterior pillar known as the *plica tonsillaris*. This plica is very generally mistaken for the surface of the tonsil but can be readily recognized as a distinct membrane on close examination and does not contain crypts. It will be found covering closely the tonsil proper and closing up the openings of certain crypts, notably those on the upper surface of the tonsil which should empty into the so-called supratonsillar space. Failure to recognize this common condition by the general practitioner has caused the throat specialist to be subjected to much undeserved criticism for undue radicalism. A spray directed at right angles below this plica, if it is not adherent, will very frequently dislodge the little cheesy masses so often found in the crypts of otherwise healthy appearing tonsils, showing conclusively that proper drainage does not exist.

This submergence of the tonsil varies in degree. In the commonest form perhaps one-fourth to one-third of the front of the tonsil is covered and about the same width of the upper surface. In others, the so-called fully submerged tonsils, very little if any of the real glandular substance can be seen even when the patient gags. This is the typical tonsil in the new born child.

The peculiar arrangement of the cavities of the tonsil, one crypt running into another like the spaces in a sponge, is the great reason of the frequent exposure of this gland to infection. Situated at the very entrance of the alimentary tract, constantly in contact with the secretions and contents of the oral cavity, the most notoriously infectious of the body, particularly in young children whose method of investigating every object found is by promptly putting it into the mouth, is it any wonder that these crypts can practically always be found containing multitudes of bacteria? The germs of pneumonia, tuberculosis, influenza and diphtheria are frequent. The commoner pus cocci are always present.

Against these various bacteria, the lymphocytes of the tonsillar stroma are waging a constant fight, coming out through large interstices in the epithelial lining into the crypts to engage in this unending struggle. The result of this action is a whitish mass of dead lymphocytes, pus cells and epithelial detritus which is ordinarily forced out by the squeezing process before mentioned. If this is prevented by any obstruction, inflammatory or otherwise, it forms the peculiar cheesy masses so well known to all.

It would be impossible in a paper of this kind to even give a résumé of the various experiments made to show either the infective character of the crypts or the defensive work of the lymphatic stroma. Coloring matter rubbed over the tonsils has been found in specimens removed on successive days in the crypts, then in the lymphatic tissue of the gland, then the lymph channels connecting with the nearest node at the angle of the jaw, then in the other deep glands of the neck running down toward the pleura of the apex of the lung. Young healthy pigs have been fed on tuberculous matter, and in varying times have shown tubercular germs and giant cells, first in tonsils, then in the cervical glands. On the other hand, while germ growth is the rule in the cavity of the crypts, it is rarely found in the lymph tissue itself, although this tissue so often shows the characteristic condition so generally found where there is absorption of toxins. Space is lacking to go deeply into this.

Bacteriologically speaking, the case against the tonsils is not conclusive. We are met by much the same disappointment as in the examination of rheumatic joints. Clinically, however, the connection between tonsillar infection and other diseases is overwhelming. The tonsils are blamed by many as the starting point of measles, scarlet fever and other exanthemata, rheumatic heart diseases and arthritis, influenza, adenitis, osteomyelitis, pleurisy, iritis, phlebitis, some vari-

eties of nephritis, chorea and tuberculosis. In many of these the case seems not well made out, though detached instances of such infections undoubtedly occur. In the rheumatic affections, however, there is an immense mass of clinical evidence which demands careful consideration.

American observers find plain evidence of tonsillitis accompanying or directly preceding acute rheumatism in from 16 to 29 per cent. of all cases. Charles S. Kiefer, of the U. S. Army, in a series of 276 cases of acute rheumatism, found that 21.3 per cent. had a previous tonsillitis. Acting upon this he treated 60 patients with tonsillitis by local applications of dry aspirin, with the result of less spread of inflammation, no general disturbance, no ulceration of tonsils, average duration of sickness three days and no joints affected. In 60 patients treated by the customary methods with guaiac, tincture chlorid of iron and peroxid, a number had swollen necks and severe general disturbance. Ulcerations were frequent, average duration was six days and 15 per cent. had joint rheumatism.

Price Brown quotes Wagner, of San Francisco, as stating that he has found in the synovial fluid of the knee joint in two cases and in the urine of nearly all of his cases the same micro-organism he discovered in their tonsils, although clinical history proved that they had been free from other diseases prior to their tonsillitis.

In Germany Kleiminger found lacunar tonsillar trouble in 41 per cent. of articular rheumatism, nephritis and other streptococcal infections, while earlier tonsillar trouble was found in 27 per cent. of the same diseases. In another place the same author designates the tonsils as the point of entrance in 83 per cent. of the streptococcal infections. The extensive investigations of Grober bear out these deductions. The German observers, as well as those who have had the opportunity to go more deeply into the matter in this country, state that it is especially in the milder forms of tonsillar trouble that general infection is to be expected. Where there is severe reaction in the tonsils it shows a more stubborn resistance at the point of entry with greater liability of damming back the invasion. Very many detailed accounts are found scattered through medical literature during the last few years of joint and cardiac rheumatism following after slight tonsillar troubles. During the preparation of this paper in the mild epidemic of pneumococcal catarrhal fevers of the past few weeks I have seen three cases of insignificant tonsillitis followed directly by endocarditis in previously healthy children. All doctors of experience can call to mind cases of rheumatic joints ushered in by tonsillar troubles.

Articular rheumatism is only a name for a serous synovitis whose origin we do not understand. It is now pretty generally conceded that this disease is the effect of toxin absorption from various bacterial infections. Artificial rheumatism has been caused by injections of dead pus cultures and in a very few cases the pus cocci have been grown from rheumatic joint fluid. As Lovett says: "If acute synovitis of one or more joints occurs in the course of scarlet fever we at once call it scarlatinal arthritis. If the cause of the infection is not apparent we call it articular rheumatism," and again: "In many cases the source of infection cannot be found, and in such cases it is well to remember the tonsils and the presence there of pyogenic bacteria."

Goodale's experiments of painting the tonsil with carmine shows us that there is a current in which the color particles tend from the surface of the tonsil through the crypts into the lymphatic circulation. Granted that living germs themselves rarely have been discovered, it is evident that toxins may circulate in this current and reach any part of the body. While conclusive proof may not yet exist of the tonsillar causation of rheumatism, the presumptive evidence is very strong. We have so long been accustomed to think of rheumatism causing tonsillitis that we are somewhat slow to reverse our ideas in this regard.

In this connection I may be pardoned for quoting at length from Prof. Grünwald, of Munich. It may be noted that the following statements were published in his book, translated into English in 1903, several years before this matter attracted much attention in this country even as a serious question. He says:

"A description of the lacunar inflammation of the pharyngeal ring would be anything but complete, in fact, would be lacking in an important essential if it

failed to include the complications which are often much more important than the local condition. In the majority of cases the invading army of cocci encounter the resistance of the inflamed follicles; these immediately pour out numbers of leucocytes into the intervening spaces, and the advance guard is checked by the lymph-glands of the affected region, so that, without exception, glandular enlargement accompanies every attack of angina. But as soon as the normal outpouring of leucocytes begins to be insufficient, there is not in the whole body a better port of entry for the invasion of fungi that have not been damaged by secretions than is found in the lacunæ of the tonsils. Accordingly it is common to see, after tonsillitis, irritations or even grave inflammations of the serous membranes. Indeed, clinical experience makes it probable that the source of various inflammations of serous membranes in which no other definite cause can be discovered is to be sought in the pharyngeal ring, whether the latter has been acutely diseased or only predisposed to the reception of pathogenic germs on account of former attacks or of some structural abnormality. The whole army of these acute febrile and sometimes very harmful inflammations of serous membranes has not inaptly been attributed to cryptogenetic septicopyemia and this is true, but in a special sense of the term, since they arise from the crypts of the tonsils. These affections, including pleuritis, endo- and pericarditis and the cutaneous manifestations by which they are accompanied (purpura, erythema nodosum, and the like), have long been recognized as possessing a certain causal connection, and this is now explained by the discovery of their common origin. Slight irritations, especially of the joints, are unquestionably much more common than is generally supposed, because no mention is made of them and they sink into insignificance beside the febrile pain. On the other hand, the more severe affections of the serous membranes so dominate the picture that the original angina is quite overlooked, or at least forgotten, and, as the pathogenesis is not determined, the proper measures to prevent recurrence of the attacks are neglected.

"Among the rare diseases of serous membranes is inflammation of the tunica vaginalis of the testicle. A number of cases of this form of orchitis and one case of peritonitis have, however, been observed. That disseminated metastases of true pyemic character—septicophlebitis—occasionally occur is readily understood from what has been said.

"Even pneumonia has been observed to follow lacunar angina in a number of instances, although the bacteriologic connection was not very clear, while, on the other hand, in the inflammation of serous membranes the same streptococci and staphylococci were found as in the original angina. The occurrence of a febrile albuminuria or true nephritis after tonsillitis presents nothing characteristic, as it is a phenomenon common to all acute infectious diseases.

"In connection with the pathogenesis of general septicopyemia the fact is worth mentioning that osteomyelitis has been observed as a sequel of angina, identical fungi being demonstrated in the tonsils and the pus contained in the bone-marrow. The most typical case of the kind was one of simple fracture of the humerus, which developed symptoms of osteomyelitis immediately after an intercurrent attack of angina. Some of these complications, including the milder ones, especially simple irritation of serous membranes, are probably due more to resorption of toxins than to a true metastatic process. The same pathogenesis applies to the neuritis which sometimes follows simple angina, as well as pharyngeal diphtheria."

Even more common than rheumatism, it is claimed by those who have studied this matter, is a mild form of parenchymatous nephritis accompanied by partial suppression of urine and transient albuminuria. It is claimed to be of tonsillar origin in 41 per cent. of cases. Adler claims that this form of nephritis is found in 75 per cent. of all cases of tonsillitis. It behooves us to investigate thoroughly the hidden pockets of the tonsils in these very common kidney conditions.

Again there can not be too careful study of the tonsils in every case of cervical adenitis. Jacobi claims that there is less adenitis from tonsillar infection than from infections of neighboring parts. This is doubtless true in the beginning of an inflammatory trouble as the stroma of the tonsil can be regarded as the lymphatic gland of the crypts themselves. In other words, the tonsillitis itself

is the first evidence of adenitis. Chronic infections, however, of the neighboring parts are almost negligible in comparison with those of the tonsils so that in practice it will be found that there is a very intimate relationship between tonsillitis of all varieties and cervical adenitis. Schlenker and Kruechmann have apparently found in their extensive investigations that a large proportion of the enlarged cervical glands of children are tubercular and accompanied by tuberculosis in the tonsils.

In autopsies of 136 cases of pulmonary tuberculosis conducted by seven German investigators, 94 cases of tonsillar tuberculosis were found, or 69 per cent. Such tonsils clinically do not differ in appearance from the ordinary varieties and the cervical adenitis is frequently our only method of discovering their diseased condition. The presence of the tubercle bacilli in the crypts is exceedingly common. In the lymphatic tissue surrounding very few bacilli are found, perhaps a few giant cells. Goodale, in seven cases where he removed tonsils because of cervical adenitis, had the organs studied by Jonathan Wright, who found them all tubercular. In every case immediate improvement took place in the condition of the cervical glands and the general health of the patient.

Personally, the writer has for years been opposed to the indiscriminate removal of these cervical glands and has often saved patients from the necessity of this operation by removing the tonsils. It may be asked, "Why not remove the glands in the neck if you take away those of the throat? Enucleation of the tonsil is often a more difficult and dangerous piece of surgery than cleaning out a chain of cervical nodes." The difference is that in the tonsil will be found the tubercular deposit, an ever growing or ever renewed source of infection, whereas the glands are seldom more than hypertrophied nodes from toxin absorption. Where they have become broken down and actually themselves sources of infection, they, of course, require removal. Nothing, however, can be more illogical than an extensive enucleation of all the glands of the neck so hideously scarring the patient and yet leaving the tonsil itself the original source of the trouble. Yet this has been the rule but a short while ago, and is still extremely common even with surgeons otherwise very careful.

Lastly, a word must be said about a common ailment more closely related to the tonsils, namely, quinsy. Few more distressing ailments exist than this peritonsillar infection. As is now well known, the source of the infection is tonsillar while the abscess is extratonsillar. A radical removal of the gland, no easy matter by the way, on account of old adhesions, absolutely prevents recurrence. Recurring tonsillitis should be placed in the same category as quinsy.

It is not necessary now to discuss the other diseases mentioned, as their relationship with tonsillar infections is not yet well enough authenticated. In these four here treated, rheumatism, either articular or cardiac (perhaps also the so-called muscular rheumatism), nephritis, cervical adenitis and recurring tonsillitis and quinsy, the tonsil question calls for an answer. Shall these glands be removed or not? It is a serious question not always easy to decide, for this operation is not a trivial one. Do not for a moment think that the ordinary snipping off the projecting tonsil with a tonsillotome is meant. Any tyro can do the guillotine operation, but it removes only a part and that the least harmful. In the conditions mentioned in this paper, that operation is worse than useless. Entire enucleation of a bad tonsil by dissection is a formidable operation. Few men without experience in throat work care to attempt the second case, and the man with the most experience is always the most modest in his claims. The one who talks loudest regarding his tonsil work will usually be found to use a simple guillotine and leave the outer half of the organ for some one to dig out afterwards, if, indeed, the patient is not convinced that all operations are of no avail.

Personally, I started out in tonsil work and have been for years very conservative. Added experience has had an effect the opposite of the rule, and I am becoming inclined to be much more radical. If I were to answer my own question it would be thus: In all cases of recurring tonsillitis and quinsy, let the patient

decide whether one sore throat of only moderate severity on each side seems better to him than his expected attacks. The danger of hemorrhage can be considered slight in comparison with dangers of possible infection of other organs.

In all cases of distinct cervical adenitis remove tonsils thoroughly before considering the question of cleaning out the glands of the neck. In the vast majority of cases the external operation will not then be necessary. In all infectious diseases of streptococcal or pneumococcal origin examine carefully the condition of the tonsils, washing out the crypts and treating with antiseptics. In recurring rheumatism or endocarditis and myocarditis, examine carefully, and if either or both tonsils are found in the slightest diseased or submerged or with history of cheesy concretions, advise operation.

Simple hypertrophied tonsils causing trouble only by their size can probably be removed by the guillotine, though even in these cases I practically always enucleate. As regards method of operation: That is a question for the individual operator. Cocain anesthesia is distinctly best and safest, but not always does it do away with all pain. I seize the tonsil in a suitable vulsellum and with either an angular dissector or curved scissor free the gland first above, then in front and behind, from soft palate and the pillars of the fauces. Then, drawing forcibly inward, I rapidly cut the entire organ from its bed from above downward. The test of the success of the work is finding the entire capsule of the gland removed, and a smooth hole where the tonsil was, free from any small adhering masses of lymphatic tissue which may afterwards develop.

Adrenalin, before applying the cocain, diminishes the hemorrhage somewhat, but this is usually very considerable and rapid work is required. The patient should be put at once to bed and perfect quiet is the best preventive against after bleeding. Should this occur, ice in the hole left by the operation is usually sufficient. If not a hypodermic of morphin has always answered. I have never yet required a clamp, but carry one for emergencies. The after soreness is not very extreme in this operation. In the cautery dissection which I formerly advocated as the only way possible to entirely remove the organ, the after pain was sometimes excessive, but I consider this unnecessary.

As this operation is now becoming common, we will soon have an opportunity to test the practical results. One object of this paper was to ask for histories of this kind for a fuller study. I should esteem it a personal favor to have any physician send to me such histories of general diseases from tonsillar infection and results after thorough enucleation, remembering always that mere tonsilotomy does not count. And it must also be borne in mind that what I have said regarding the faucial tonsils applies in somewhat less degree perhaps to adenoid growths.

72 East Madison Street.

BIBLIOGRAPHY.

1. Adler: Remarks on some general infections through the tonsils. *New York Med. Jour.*, 1906, lxxxvi, 641.
2. Goodale J. L.: Systemic infection through the tonsils. *Boston Med. and Surg. Jour.*, 1906, cl, 278.
3. Jacobi: Infection by way of tonsil. *New York Med. Jour.*, 1906, lxxxv, 360.
4. Jacobi: The tonsil as a portal of microbic and toxic invasion. *Arch. Pediat.* New York, 1906, xxiii, 481.
5. Ross: The rôle played by the tonsils in organismal diseases. *Med. Press and Circ.*, London, 1906, N. S. 81, p. 333.
6. Barth: Ueber die Physiologie der Tonsillen und die Indication zu ihrer Abtragung. *Deutsch. Med. Wehnschr. Leip. u. Berlin*, 1907, xxxiii, 2043.
7. Langworthy, H. G.: Adenoids and tonsils with special reference to examination of throat in chronic systemic infections. *Boston Med. and Surg. Jour.* 1908, clviii, 145.
8. Danziger: The tonsils and their relation to the development of tuberculosis. *Laryngoscope*, St. Louis, 1907, xvii, 914.
9. Bombard H.: Periarthritis nodosa als Folge einer Staphylokokkinsepsis nach Angina. *Virchow's Arch. of Path. Anat.*, Berlin, 1908, xix, 305.
10. Hurd, L. M.: The submerged tonsil with special reference to cervical adenitis and systemic infection. *Amer. Med., Burlington and New York*, 1908, N. S. 3, p. 316.
11. Reik: The relationship between degenerate tonsils and middle ear disease. *Laryngoscope*, St. Louis, 1908, xviii, 943.
12. Ingals, E. F.: The relation of tonsils to rheumatism. *Laryngoscope*, St. Louis, 1907, xvii, 712.

13. Mayer, Emil: Diagnostic value of symptoms of upper air tract in rheumatism, gout and diabetes. *Laryngoscope*, St. Louis, 1908, xviii, 610.
14. Wright, Jonathan: *New York Med. Jour.*, 1906, Dec. 15.
15. Goodale, J. L.: *Trans. Amer. Laryn. Assn.*, 1907, 228.
16. Wood, Geo. B.: *Amer. Jour. Med. Sci.*, N. S. 131, p. 620.
17. Hare, H. A.: *Editorial Therap. Gaz.*, 1907, Feb. 15.
18. Wheelock, K. K.: *Amer. Med.*, Phila., 1906, xi, 250.
19. Kleiminger, F.: *Centralbl. f. Bact.*, xxxviii, 690.
20. Klefer, Chas. S.: *Amer. Med.*, 1906, September.
21. Brown, R. C.: *New York Med. Rec.*, 1907, lxxi, 341.
22. Tracy, E. A.: *Boston Med. and Surg. Jour.*, 1907, clvii, 114.
23. Freudenthal, W.: *Annals of Otology*, 1899, page 293.
24. Grober: Tonsils as portals of infection. *Klin. Jahrbucher*, 1905.
25. Wood: A contribution to the study of tuberculosis of tonsils. *Laryngoscope*, St. Louis, 1906, May.
26. Schlenker: Researches into existence of tuberculosis of cervical glands with reference to tonsillar tuberculosis. *Virchow's Archives*, vol. cxxxviii.
27. Kruechmann: On the connection of tuberculosis of cervical glands to that of tonsil. *Virchow's Archives*, vol. cxxxviii.
28. Bandeller: Tonsillen als Eingangspforten der Tuberculose. *Beiträge zur Klinik der Tuberculose*, 1906, vol. vi.
29. Lovett: Researches on infections of joints. *Boston Med. and Surg. Jour.*, 1906, May 24.
30. Goodale: *Annals of Otol., Rhin. and Laryngol.*, 1907, page 85.
31. Osler: *Prin. and Prac. of Med.*, 1898.
32. Grünwald: *Saunders' Med. Atlas*, Dis. Mouth, Throat and Nose, p. 137.
33. Price, Brown: *Dis. of Nose and Throat*, page 194.

STUDIES IN CONTEMPORARY WORKMEN'S COMPENSATION FOR INDUSTRIAL INJURIES.

W. H. ALLPORT, M.D.

THIRD PAPER.

In the present paper we will discuss certain of the every-day phases of the harshly legal methods by which American communities meet a situation which the Old World, for nearly a generation, has recognized to be altogether extra-judicial.¹

X.

The American notion of compensation for industrial injuries is based altogether on the common-law rights of individuals. Even statutory enactments have as yet made scant inroads on the theory that obligation begins and ends with liability, and that the basis of all liability is negligence.

American law does not hold it to be one of the duties of the employer to guarantee or insure the safety of his workmen, or even to insure to the workman an invariably safe place in which he may work. Occupation is supposed to be inseparably associated with risk, and that risk, when unaccompanied by negligence of another, must be assumed by the person working at the industry. Nor does the common law exact of any industry—however profitable it may be to the principal—any pledge of compensation for injuries which its workers may sustain in consequence of these incidental risks, unless such injuries are the proximate² results of

1. Space will not permit of a discussion of other interesting aspects of this question, but a future paper will deal with various steps taken by private philanthropy, business sagacity, or speculative instinct toward providing the workman and his master with a measure of that insurance against the accidents of industry, which is denied them under the law of the land.

2. The law concerns itself only with proximate, or direct, cause and result. "Proximate Cause: That force or influence which in the order of causation is nearest to the effect or result under consideration, and is sufficient of itself to produce the result." *Anderson's Law Dictionary*.

negligence on the part of an employer, or of his vice-principal or other representative.

In two ways, therefore, does the legal situation of the injured workman in the United States differ, at the present time, fundamentally from that which he holds in twenty-three other industrial nations:

1. Our system rejects the doctrine of trade responsibility (insurance) for all industrial injuries; and
2. Adheres to the ancient common-law practice of making compensation for injury depend solely on the result of an inquiry into the source of negligence.

Under a strict interpretation of our unmodified common law the American workman goes uncompensated for his injury, unless he can prove that the negligence of his employer, or that of his employer's authorized representative, was its proximate and sole cause. *The burden of proof lies upon the workmen.*

We have already referred briefly to the injustice of these ancient doctrines of common law, and have shown that so far as the European industrial world is concerned, they have—happily—become things of the past. But—unhappily—we, in this country, are still living among conditions imposed by this law, and resulting from its operation; and it is purposed in the present paper to enquire why we still uniquely occupy that now obsolete position which was held by all industrial nations prior to 1884; to discuss the very present conditions under which we are now living, and such measures for temporary legal relief as have already become operative; and to outline the probable avenues along which we will eventually attain to a more far-reaching adjustment of our problems.

We cannot console ourselves for backwardness in this matter with the notion that either problem or conditions are unusual with us. On the contrary, we have not only our own experiences to guide us, but those of all other nations; for every phase of problem, conditions, results, even our own hitherto unsystematic and futile efforts at statutory escape, find ready parallels in European situations of the last thirty years.

Many causes are operating to produce and encourage this delayed development; to the more intimate and specific, we will recur later, and will consider at this point only those of a more general nature:

1. The Republican—and still less, the Federal—form of government does not lend itself naturally or readily to constructive law-making, either radical or systematic. Compromise legislation—the usual form in republics—is rarely radical and always dilatory, and systematic legislation is impossible when the units of government are as unstable as in systems like our own. We do not have to go beyond the limits of our present subject to find illustrations of these truths. The Swiss Federation has never been able to agree on any general workmen's compensation laws for Switzerland. The French Republic took eighteen years to enact a law, the final unsatisfactory nature of which is due almost entirely to the fact that it was based on a series of compromises. The English laws were delayed, and are admitted to have fallen far short of present perfection, because of changes in government and necessity for compromise between parties in power. On the other hand, in Germany, where the ruler has no hesitation

in saying *Suprema lex regis voluntas esto*,³ and where the government is reasonably continuous, a radical and complicated revolution in industrial relations was completed, as originally planned, within four years of the announcement of the program by the Kaiser.

2. Certain factors, based largely on considerations of legal technic have, in the past, operated strongly among the members of our legal profession, leading them to throw their influence against any radical change in the legal and judicial systems established by our constitution and developed under our common law. These factors are: (a) Worship of the common law, and fear of changes in any of its essential features and routine, lest the spell of national prosperity be broken; still more, (b) The fear of statutory delimitation of individual rights; above all, (c) The jealousy with which our courts watch for encroachments of the legislative arm of the government beyond the limitations imposed upon it by our constitution.

Probably a large measure of the veneration in which the Anglo-Saxon and Norman common law is held by the average English and American⁴ lawyer, finds its reason and justification in the fact that this great unwritten body of jurisprudence has been accumulating for generations as a bulwark for the protection of the individual. James Bryce has well said that the growth of the common law is coincident with, and dependent upon, the development of the notion of individualism, and that both are founded upon the theory that the individual is a center of legitimate force, entitled to existence and protection up to the limit where it impinges unduly upon other individual forces.

Many modern abuses, in the application both of the common law and of the so-called philosophy of individualism, are based on the fact that, whilst neither of these systems conceived originally of the individual except as a person—and so possessed of the usual personal and moral attributes—our American definition of the individual has, under the common law, become so broad that we must extend to any corporate body the protection and privileges which were originally intended for *persons* only. Whilst thus insisting on all the privileges conceded to the most favored private individual, the corporation, not content with part of the loaf, usually arrogates to itself also many of those public rights to which a private individual would never dare aspire. It has been well and recently said that this erroneous double view of corporations—both as private individuals by right of incorporation, and as public bodies by right of the use and concession of public privileges—with the long train of miscarried justice entailed thereby—flows not from our constitution, but from John Marshall's interpretation of it.

It is but natural that courts and lawyers should cling to a narrow and professional view of questions in which the law and its interpretation play such an important part; but until we, in this country, can regain that larger European viewpoint, which holds that the powers and rights of public corporations and concessions flow from the public and are in no sense inherent in these groups of individuals, and that public corporations must therefore respond to principles of law controlling not only public but also individual policy, we can hardly hope for any farreaching or systematic industrial legislation.

3. The inevitable and irrepressible conflict between Federal and state jurisdictions entailed by our complex form of government. That the obstacles interposed by this factor are not insuperable may be seen by a study of the German laws outlined in the second article of this series. In a future paper we will return to this aspect of our industrial dilemma.

3. William II.

4. In Louisiana alone is found another basis of procedure—the Civil Code of Napoleon. This in turn was based almost altogether upon the Roman law, which is the foundation of the codes of continental Europe.

XI.

Our investigation now leads us to an inquiry into the present status of the American workman, who, having sustained an industrial injury, seeks compensation from his employer on a basis of such civil rights as are his under either the common or the statutory law.

As we have already intimated, we need here only consider Negligence, both as the cause and the defense of the action; for, under our English law of Torts,⁵ even violations of statutory enactments are usually nothing more than specific forms of Negligence; and this plea, or something like it, is the only possible one through which the injured workman may receive compensation for loss of time and stock-in-trade, or by which the employer may defend his financial resources from unjust assault.

Inasmuch, therefore, as the employer must defend himself against the charge of negligence of his duty toward his workmen, we may properly inquire:

1. *As to his duties*—(a) What are these duties under the common law? (b) To whom may they be delegated? (c) How has the statutory law, otherwise or more specifically, defined duties, fellow-servants and vice-principals?

2. *As to his defense under the common law*—(d) To what exemption is he entitled? (e) What restrictions are placed upon the workman? (f) What right under certain conditions has the employer to shift responsibility to other shoulders? (g) How have these rights and restrictions been modified by statute?

THE APPLICATION OF COMMON LAW TO INDUSTRIAL INJURIES.

Stated in all their bald medievalism, the various phases of the common-law doctrine of Torts, governing the *duties of the master* toward his servants, are somewhat as follows:

It is the duty of the master to furnish (only) reasonable protection to his servant while at work, and to give him the same ordinary (not extraordinary) protection that a prudent man would give himself. He is liable (only) for damage occasioned by his own act or omission, or by that of his representative, (only) when that act is the result of negligence. He should exercise reasonable (not unreasonable) care in hiring co-servants, in making repairs, in instituting safety devices, in making and enforcing rules, in giving instruction and warning relative to danger and increased hazard. He can make contracts either verbal, written or implied (unless prohibited by statute) with his workmen, releasing himself from liability for these hazards.

Volenti Non Fit Injuria.

The master is not liable for injury to his workman through defective machinery if the latter is aware of the defect, even though the master has himself been notified of the defect and refuses to remedy it; for the workman, as a prudent man, is under no obligation to continue to work after knowing of his danger, even though so ordered by the master. "The

5. Tort: A civil wrong (not based on contract) inflicting damage, for which there is a remedy in a court of common-law jurisdiction.

workman who has invited or consented to an act or condition cannot complain of it when he suffers from it."

Assumption of Risk.

Certain occupations are supposed to be associated with extraordinary risks, and those risks, both general and special, or the possibility of them, being known at the time of employment, are assumed by the workman, and the acceptance of employment constitutes an implied waiver of the right to recover for injury. It is assumed that extraordinary wages are paid for services accompanied by extra hazard.⁶ The rule of law is that if one, fully cognizant of the risks of a particular service, voluntarily enters thereon, his undertaking of service is interpreted as an *assumption of those risks* and a waiver of any right to complain of an injury therefrom. (Bishop on Non-Contract Law, Sec. 675.) This common-law rule is supposed to embody what has been termed—with ghastly facetiousness—"labor's right to get killed." For all accidents not directly traceable to the employer's negligence, the workman must himself assume the risk. This includes not only all accidents the result of natural or of unforeseen causes, but also those which result from negligence of a fellow-servant.

Contributory Negligence.

If the workman who has been injured can be shown to have contributed in the least, by his own negligence, to the *proximate* (immediate, nearest) cause of the injury, he has no recourse against the master, whose remote negligence may represent 99 per cent. of its cause.

CASE.—A freight conductor in charge of a heavy fast train of 40 empty cars fell from his train at night, whilst hanging over to inspect a hot box. The train was going twenty miles an hour, and he fell across the rails of the opposite track, fracturing his spine. It was found that the fall was due to the giving way of the defective wood supporting a hand-hold. The case was taken from the jury and recovery was barred by the plea of Contributory Negligence, in that the train conductor's duty to inspect the fastening of grab-irons on all the cars in his train had been neglected. (*Martin vs. Wabash Railroad*, 142 Fed. Rep. 850.)

The doctrine of "Contributory Negligence," by which all Federal and state courts in this country govern themselves, unless expressly prohibited therefrom by statute, is this: "If an employee's fault, whether of omission or commission, has been the proximate (nearest) cause of his injury, then he is without remedy against the employer who is also in the wrong, for the reason that the employee's negligence has contributed most directly to the injury."⁷

Fellow-servants.

The common law regards as fellow-servants all men who are employed by the same master, and to whom authority has not been delegated, or who are not at the time of an accident in exercise of that authority.⁸ The

6. This assumption never was true even when the common law was in its infancy, and is certainly not at the present day. The normal price of wages always follows Ricardo's law of supply and demand, and is based on the quantity, quality and supply of the labor, and not on danger or risk.

7. (*Little vs. Hackett* 116 U. S.—371, cited in *Anderson's Law Dictionary*—704.)

8. "Those engaged in the same pursuit, under the same general control." *Cooley, Torts*, 541.

"All who serve the same master, work under the same control, derive authority and compensation from the same common source, are engaged in the same general business, though it may be in different grades or departments of it, are fellow servants who take the risk of each other's negligence." *Thomp. Negl.* 1026.

common law definition of the word fellow-servant may include those who are not even employed in the same department, and who can have no direct knowledge of the presence, duties, or immediate dangers of one another.

The vagaries of American common law, as exemplified in the devious meanderings of the fellow-servant doctrine, find an edifying illustration in the various legal attitudes which the ubiquitous railroad gang-boss or section foreman is supposed to assume whilst carrying on his daily round of duties. If he orders his gang into a narrow cutting and they are thrown into space by a regular train of which he should have had knowledge, he is a vice-principal, and every one but the boss himself recovers damages. But if a wild engine runs by his flags and smashes things, the company pays nothing and the engineer takes to the woods, for the Federal Supreme Court held in 1893 that an engineer in charge of a wild engine was not a vice-principal, even though the company's rules made him under such conditions the equal of a conductor. If the boss takes a hand in the work himself, throws a tie down the embankment, and smashes the toe or cracks the shin of a section hand who talks too little English to get out of the way, they are co-employees, and no one is paid anything beyond a donation. Again, if he or his gang take up a rail and the same engineer with the wild engine goes into the ditch, the company repairs the track and the engine, but the engineer may have to repair himself and his feelings (unless the company's attorney settles the case, fearing the trial judge may hold heretical views and allow it to go to a jury), because a fellow-servant was the proximate cause of the accident.⁹

Right of Action.

Finally, under the common law, the workman may be barred, by virtue of his acceptance of a written or implied contract of employment, from bringing an action against his master for injuries resulting from that employment; and if an employee meets instant death in consequence of an accident occurring through even gross negligence of his employer, no civil action (for damages) can be maintained against the negligent employer by the personal representative of the deceased.¹⁰

We may sum up the most important principles of the unmodified common law applying to industrial injuries, as follows:

The employer has the right to exact from the workman, as a condition of, and preliminary to service, a written waiver of all future claims for damage arising through the former's anticipated negligence.

If the workman has, through negligence, contributed proximately—even though slightly—to the accident, he may not recover. Nor may he, if the accident was merely incidental to his known duties—he assumed the risk. Nor may he, if his employer was grossly negligent—he had the option of quitting the service—*volenti non fit injuria*. Nor may he, if a fellow-servant is to blame for the accident. Under certain conditions, the workman has not the same right to bring an action against his employer as would have been his had he not been an employee. Nor may his personal representative bring an action, if he was instantly killed.

9. I. C. R. R. Co. vs. Bentz (Federal Circuit Court of Appeals, 6th Circ., 1900).

10. When the "Fathers of the Law" desired to perpetuate any especially medieval and unreasonable doctrine they were in the habit of crystallizing it into a Latin maxim. The above particularly choice fragment of legal inhumanity is embalmed as follows: "*actio personalis moritur cum personâ*." This venerable doctrine—the reason for, and the history of which are lost in the dark ages of English jurisprudence—was the law of England until the passage of Lord Campbell's Act in 1846, which modified, but did not altogether abolish it. It received its *coup de grâce* in the Workmen's Compensation Act of 1897. The doctrine, however, still favors the common law of many American states.

In more than a third of the states of the Union, the unmodified common law, substantially as here stated, is still the law of the land.

HOW HAS THE COMMON LAW BEEN MODIFIED?

By an almost infinite variety of methods—just, unjust, spasmodic, impossible, well-meaning, but never uniform or systematic—have these crude, harsh and archaic attitudes of the common law been tempered and modernized in many of the American courts, by rulings or statutes, for the benefit of the workman. To be sure, our system still clings to negligence as the vital point in personal injury causes—for courts can hardly rise higher than the laws which exist as the fountain head of their inspiration—but in the following ways does the workman to-day find himself easily the gainer over his ancestor of a generation or two ago:

1. In nearly all states the *personal representative* of an instantly killed workman has received statutory permission to bring a suit for damages.

2. Many states have now passed laws specifically prohibiting the practice of executing preliminary "Death Warrants," by which the employee "trades his flesh and blood for a job," and in consideration of employment agrees to assume all risks arising through the negligence, known or unknown, of his employer or his employer's agent.

The following are the states, in the codes or constitutions of which are found laws expressly *forbidding* these *employers' exemption contracts*: New York, California, Colorado, Texas, Georgia, Indiana, Iowa, Massachusetts, Mississippi, Minnesota, Missouri, Montana, Nebraska, Nevada, North and South Dakota, South Carolina, Ohio, Oregon, Porto Rico, Florida, Virginia, Wyoming, and Wisconsin.

In the Federal courts prior to 1908, and in states like Illinois and Pennsylvania, where no prohibitory statute exists, such contracts are still valid, limited only by the provisions of Safety Appliance Acts,¹¹ or by the personal views or the established practice of the courts. In justice to the latter, it must be said that the majority of courts now regard these contracts with scant favor, and often accept them only in mitigation of minor forms of negligence or of grossly excessive verdicts.

3. Many states now give to the injured workman the same *right to sue* his employer that would be his were he not in his employer's service. This is the result of statutory enactments in Massachusetts, New York, Mississippi, Iowa and some other states. Elsewhere the right is now usually conceded, and the Federal Employer's Liability Act of 1908 gives the workman the same right in the Federal courts.

4. The courts have, in many instances, responded voluntarily to the popular protest by refusing to entertain the far-fetched pleas of *contributory negligence* and *assumed risk* often brought in by corporate defendants. A willingness has found its way, even into the higher courts, to hold that responsibility for unnecessary risk or divided negligence often rests more upon the employer than upon the workman, and to allow such questions of doubtful responsibility to go to a jury for decision.

The higher courts themselves do not undertake to interpret in concrete cases certain questions involving degrees of danger, and are very apt to remand on the point that the degree of known danger attendant on compliance with a vice-principal's order is a question of evidence; "it should be left to the determination of the jury to decide whether the danger attending a compliance with such an

11. Federal Safety Appliance Act, 1893, etc. See post.

order was such that an ordinarily prudent workman should have disobeyed it." Such a case is that of *Schymanowski vs. Illinois Steel Company* (162 Ill.—447):

A foreman ordered the plaintiff to go to work in a badly lighted place; the plaintiff demurred, calling attention to the bad light, but on the order being repeated—in scandalous language—he went in under protest, and, in spite of great caution, was injured. It was held that his protest, and the cautious manner in which he acted in obeying the reckless order, entitled him to damages. The court said: "A master is liable to a servant when he orders the latter to perform a dangerous work, unless the danger is so imminent that no man of ordinary prudence would incur it. Even if the servant has some knowledge of attendant danger, his right of recovery will not be defeated, if, in obeying the order, he acts with the degree of prudence which an ordinarily prudent man would exercise under the circumstances. The master and servant are not altogether upon a footing of equality; the primary duty of the latter is obedience, and he cannot be charged with negligence in obeying an order of the master unless he acts recklessly in so obeying. Whether he acted thus recklessly in obeying his master's order or whether he acted as a reasonably prudent person should act, are questions of fact to be determined by the jury."¹²

Whilst these individual rulings do not alter the general force and continued operation of the common law, where it is not formally restrained by statute, it is not difficult to see that the modern judicial tendency is distinctly away from enforcing it too rigidly by permitting either of these two pleas to hold an otherwise meritorious case away from a jury. Some courts hold that they can decide in favor of the plaintiff—in so far as allowing him to reach a jury—if the primary negligence of the employer was great and the proximate negligence of the workman small; and many courts now hold that if the workman has conducted himself like a prudent man, the defense of either contributory negligence or assumed risk will not bar his action, but will act—if proved—in mitigation of any damages awarded. In these rulings, however, justice—through the courts—still exercises her feminine privilege of remaining neither uniform nor consistent.

We may fairly epitomize the most rational opinions of those American courts, which are not under the control of statutes designed to instruct them as to contributory negligence and assumed risk, as follows:

If a workman has knowledge of defective appliances, and after failing to notify his employer, is injured thereby; he is guilty of contributory negligence and cannot recover. If a workman has knowledge of a defect of which his master has also been informed, and is thereafter injured thereby through continuing at his work, he may find that he has assumed the risk and may be refused compensation. Upon the latter hypothesis, however, many courts are more liberal, and are apt to be guided in their rulings by the circumstances of individual cases—hence the doctrine of *comparative negligence*. If a workman is injured through a defect of which neither he nor his master—although exercising due vigilance—has knowledge, he will probably find that he has assumed the risk and cannot recover.

Assumed risk and contributory negligence as defendant's pleas have recently received many radical statutory set-backs, altering very materially the legal standing of the injured workman:

12. In the office of the Presbyterian elder from which this action was defended, it was familiarly known—by one of those pleasing colloquialisms with which the legal mind occasionally relaxes itself—as the "s.... of a b.... case."

The Federal Employers' Liability Acts of 1906 and 1908 bar the employer from availing himself of the plea of contributory negligence, and also enable the workman to sue in spite of the employer's contention that the workman assumed the risk.

Similar laws were passed at about the same time by Iowa, Mississippi, Wisconsin, New York, Oklahoma, Oregon and Texas. Many of these state laws apply, unfortunately, only to railroads, although it is well known that many other occupations furnish a higher factor of danger than that of the railroad employee.

In the same Federal acts the principle of *comparative negligence*,¹³ which was a feature of many judicial rulings in Illinois, Tennessee and Kansas during the past half-century, received recognition. This principle is said to have been first laid down in Illinois decisions, and to have subsequently become obsolete—possibly through the subtle influence of corporate persuasion not always or altogether of a legal nature,¹⁴ combined with the undoubtedly correct argument that there is nothing in the common law to justify the exclusive punishment of one party for his share in a divided negligence. In its modernized and statutory form the principle recognizes that the employer has no right to sidestep responsibility for grave negligence, through the plea that minor negligence led the workman to walk into an open trap. Even when the workman is negligent, he should receive a warning of the negligence of others, and is still entitled to the "last clear chance" which ordinary humanity gives the individual who may be about to suffer from his own *proximate* neglect. This newer and more humane principle gives a mortal wound to a defense based on the old common-law doctrines of contributory negligence and proximate (and exclusive) cause. Where the principle of comparative negligence is adopted, it is usually with a distinct limiting clause that the defendant still has the right to plead contributory negligence, but only in *mitigation* of the damage assessed on account of his own larger offense.

Not only has comparative negligence become federal law in the Acts of 1906-1908, but the following states have also incorporated it into their statutes: Florida, 1906; Georgia, 1895; Maryland, 1888 (but only for coal miners); Nebraska, 1907; Nevada, 1905; North Dakota, 1907; Porto Rico, 1902; South Dakota, 1907; Wisconsin, 1907, so that this principle, which constitutes a very decided advance over the old common law, may be considered to have secured a permanent place in the American statute book. It should not be forgotten, however, that in states such as Illinois, where no statute exists, the old procedure is still in force, subject only to such modifications as may mercifully occur to the trial or appellate judge.

5. In many states the doctrine of *volenti non fit injuria* has been definitely abolished by statute. A previous knowledge by a workman of

13. This principle—derived from Admiralty law—was enunciated by Justice Breese of Illinois in 1858. The provision of the Federal Employers Liability Act, however, is said to have been derived from the Georgia Code.

14. As to the nature of some of these arguments, the following news item (Collier's) furnishes more than a hint:

"Milo Root as a Justice of the Supreme Court of Washington, filed an opinion in a case in which the plaintiff was a private citizen and the defendant was the Great Northern Railway. The opinion which Judge Root filed was written for him by M. J. Gordon, Spokane, attorney for the Great Northern Railway. Before being filed it was submitted to and approved by W. R. Begg, chief counsel for the railway at St. Paul. This episode, giving a new light on the range of corporate corruption, has aroused the State of Washington; beyond the boundaries of the State it has led the public to look with new care at the relations between corporations and Courts."

For many years charges of a similar character have been made concerning the relations existing between the Pennsylvania Railroad and the Pennsylvania courts.

a defect which ultimately causes him an injury is declared to be no bar to recovery in Ohio, Oregon, Iowa, Mississippi, Wisconsin, South Carolina, California, Nevada, Massachusetts (5-28-'09); and in New York proof of injury through an easily discoverable defect is *prima facie* evidence of the master's negligence. Mississippi went even farther in her law of 1906, which declared that proof of accident causing death on a railroad is *prima facie* evidence of negligence.¹⁵

In New York, Colorado and Texas, however, the law refuses indemnity to a workman injured through a defect of which he had previous knowledge, but of which he failed to notify his employers. In Iowa the notification, to be valid, must be in writing. In California the workman's knowledge of a defect is no bar to recovery, unless the risk is formally accepted; and in New York, Ohio and Oklahoma questions of assumption of risk, through continuance in service after knowledge of defects, are left to a jury.

The Illinois Safety-Appliance Act provides that knowledge of violation by his employer of its provisions does not bar the workman from recovery, if he is injured through such violation; but where not protected by the Safety-Appliance Act, the employee who is injured through machinery which he knows to be defective, *still assumes the risk, notwithstanding the negligence of the employer was gross*. Such provision exists also in all other Safety-Appliance Acts (Federal, 1893; Vermont, 1894; Nebraska and Wisconsin, 1907; Indiana, 1901; Ohio, 1902; Illinois, 1905; Massachusetts (last law), 1908).

6. The older definitions of *vice-principal* and *fellow-servant*, with the doctrines based thereon, have undergone radical remoulding both in rulings and statutes, enlarging the concept of the vice-principal and restricting that of the fellow-servant. While this remolding is unfortunately lacking in uniformity, it is not difficult to see that the tendency is altogether in the interest of the workman. Such recent changes have not altered so very materially our rational conception of the fundamental attributes of either vice-principal or fellow-servant, but have stripped from the definitions many specious disguises in which a complaisant judiciary has long allowed the subtlety of corporation lawyers to clothe them.

It may be conceded that all definitions of the vice-principal include "one to whom certain authority is delegated," and also that "those who perform the same duties, at the same time, in the same locality, under the same instruction," are always fellow-servants. But the complexities of modern industry on the one hand, and the pestiferous and one-sided ingenuity of modern attorneys on the other, have so completely fogged the middle ground lying between these two industrial strata that even the Supreme Court of the United States has allowed itself to be drawn into hopeless contradictions in deciding questions calling for rulings on these

15. The Mississippi law was evidently passed with the intention of throwing the burden of the proof of innocence upon the railroad.

definitions.¹⁶ More than any other interpretation of doctrine controlling the adjudication of personal injury cases, the old definitions have been sustained, abolished, amplified, modified, complicated, befuddled and variously interpreted by federal and state courts and statutes. Hardly any two state courts are entirely in accord either with themselves, with each other, or with the federal courts, as to what is common employment; what constitutes any two men fellow-servants, co-employees, superior servants, superior agents, or vice-principals toward one another; when men's duties are, or are not, consociated—thus constituting them fellow-servants; or as to the *duality of service* of the humble section foreman; or, finally, as to how closely the men in two different departments may become associated, before they become fellow-servants, and assume the responsibility for negligence which a wider separation of the departments would have forced upon their employer. The importance of rational, definite and consistent rulings on these points is obvious, when we consider that often the only hope which an injured workman has of compensation, is in his ability to prove the author of his injury to be either some individual holding authority delegated by the master, or an employee of a department remote enough from his own to avoid the application of the fellow-servant doctrine.¹⁷

And yet the United States Supreme Court itself has said: "There is perhaps no matter upon which there is more completely confusing and irreconcilable division in the courts than the one as to what constitutes a test for common service, such as to relieve the master from liability for injury of one servant through negligence of another."¹⁸ More recently the Federal courts (1907) have been inclined to brush aside many of the doctrinal technicalities surrounding these questions, and to decide them after a study of the *character of the act* in each case as it arises, and not as questions of department or rank. And yet this inclination is purely local, and possibly purely personal. For in studying the enormous and constantly increasing volume of litigation based on these points, it becomes evident that, instead of order and conclusive classification coming out of chaos, the divagations of the common law are becoming steadily more confounding; because this disgracefully undetermined margin of judicial

16. In 1884 the Supreme Court held that a conductor of a freight train was a vice-principal; in 1899 the same court held under the same conditions that the conductor was not a vice-principal. Again, in 1893, that the engineer of a solitary engine was not a vice-principal, although the company's rules made such an engineer coequal with a conductor.

Not to be behind the Federal Supreme Court, many of the state courts have ruled both ways in cases which, to the observer uninitiated in legal mysteries, seemed strikingly identical. For example, the Missouri Supreme Court held in 1892 that negligent performance of ordinary labor by a section foreman, which injured one of his gang, was negligence of the employer. The same court in 1904 held that such an official might serve legally in a dual capacity, acting at one time as an irresponsible fellow-servant, and at another, cloaking himself in all the authority and respectability of his master, as a vice-principal. Cases of this kind could be multiplied *ad nauseam*.

17. The application of the older doctrine of *respondet superior*, which still rules in some measure in the local courts of Louisiana, would hardly "hold water" in courts like those of Illinois, or in the Federal courts, which are well saturated with the comprehensive fellow-servant doctrine of Abinger and Shaw. The Federal courts, for example, have repeatedly held that the engineer and the train dispatcher are fellow-servants. The extremes to which the judicial mind may go in this worship of the fellow-servant doctrine, is shown also in certain rulings of Eastern courts, in which it has been held that the superintendent or the general manager may be a fellow-servant, and that the power to hire or discharge other employes does not constitute a man a vice-principal (New York).

18. B. & O. R. R. vs. Baugh, 1893.

chance leads the workman and his attorney—who have nothing to lose—to gamble, in almost any case, on a hope of persuading a trial judge to permit their case to go to a jury.

Many attempts have been made by various states at statutory solution of these intolerably unjust disputes over the proper limitation of rank and responsibility, which are constantly arising to disturb the digestive harmony between the upper and lower judicial bowel. These statutes are neither uniform nor systematic, nor do they introduce any new or fundamental principle which might peacefully assimilate the entire situation. We seem to be swamped with law and rulings on law; until the only law which, to an outsider, would appear to be lacking is some general law to which the lesser laws have to conform, and which can serve—like Newtonian philosophy—to bring order out of the chaos of our legal system.

A minority of the states have as yet no statute to disturb the sway of the common-law doctrine of fellow-servant. So unjust has this seemed to the law-makers of certain more favored states that their statutes contain provisions that the "statutes and decisions of other states shall not be proved in defense against citizens injured in such other states,"¹⁹ when the action is brought in the home state.

The vicious and timorous tendency of all American law toward indefinite generalization is shown in a large number of statutes attempting to define the fellow-servant.

Ex. gr. The Illinois law is this: "Where one servant is injured by the negligence of his fellow-servant, their duties being such as to bring them into habitual association, so that they may exerceise a mutual influence upon each other promotive of proper caution, and the master is guilty of no negligence in employing the servant causing the injury, the master is not liable." Such a law is bound, after short operation, to bring the judiciary into discreditable conflict whilst endeavoring to decide as to consociation of duties in concrete cases.

The statutes of New York, Texas, Utah and Missouri are hardly more successful or specific than those of Illinois.

The California and Indiana laws define the classes of railroad employees more clearly, and the California law makes a railroad liable for the negligence of an employee in another department. This "departmental doctrine" is upheld also in Missouri, Virginia, Mississippi, South Carolina and Utah.

Some states, like Connecticut, make the employer liable for negligence of the vice-principal, but fail to define that agent.

South Carolina, Oregon, Ohio, New York, Pennsylvania, Missouri, Utah, and Mississippi define him more or less specifically, and the definition carries liability with it.

A large and constantly increasing group of states has boldly cut loose from any futile definition of the fellow-servant doctrine, by enacting laws specifying that the prudent workman may recover from the employer for negligence of any fellow-servant, either in his own or in any other department.

These states include Florida, Indiana, Minnesota, North Carolina, North Dakota, Oklahoma, Pennsylvania, Arkansas, Montana, Nebraska, Nevada, Texas, Kansas, Mississippi and Wisconsin.

In Iowa and Georgia the law applies to railroads only, and in Virginia only to co-employees in another department.

19. Indiana Session Laws, 1893, p. 294.

In Massachusetts the old law (1887) makes the employer liable for negligence of a co-employee in charge of signal, train, engine or device; in addition to being responsible for injuries due to the negligence of himself or his representative. The Massachusetts law of 1908 makes the master also liable for injuries due to negligence of *any* fellow-servant. In New York the law applies to the master or his "servant in control of men or devices" (1906). Although the recent Massachusetts and New York laws apply to railroads only, they probably represent the high-water mark of state legislation on this subject up to the present time.

The Federal Employers' Liability Act of 1908 makes no attempt to deal with this vexed question, so that in the Federal courts the old rule holds good, and the engineer and the train despatcher are still fellow-servants, provided the state law applicable to the case in question has not otherwise determined.

In the code of Louisiana alone do we find, unqualified by the fellow-servant rule, the original civil-law doctrine of *respondeat superior*, which was also English and American law in the simpler days before the decisions of Abinger and Shaw—and toward which, it will be noticed, our modern American statutes show a strongly favorable inclination after seventy years of common-law Philistinism. "The master is liable for damage caused either by himself or by his servants and overseers, in the exercise of their function." This doctrine was planted in Louisiana—as in other Latin countries—with the principles of the old Code Napoleon, and applies not only to such damage as is done to outsiders, but also to such injuries as are sustained by the workman in consequence of engaging in his master's business. It may be well doubted whether our American law could do better than to return to this simple but comprehensive statement of the duty of the master toward his servant.²⁰

XII.

If the reader, after considering these brief abstractions, in which the writer has endeavored to give the results of his investigation of the contemporary status of the injured workman under the American law, is inclined to feel bewildered and shocked, the effect will be an altogether salutary one; for until the general public can come to appreciate—we can hardly say understand—the injustices, both to the master and his workmen, which are constantly being wrought out under cover of the obscurities and contradictions of our present laws, there can be no such general movement toward effective reform as will be necessary to permanently cure the paresis from which the law courts are now suffering.

One might suppose that the remedy for such an admittedly chaotic situation, as exists to-day in all American courts deciding questions of workmen's injuries, would lie in some sort of broad, well-considered and reasonably uniform series of statutory definitions, in Federal and state law, of all these vexed industrial problems of fellow-servant, vice-princi-

20. Even Louisiana courts are now not entirely free from the taint of the fellow-servant doctrine (see Merrick's Rev. Civil Code of La., Vol. 2, Sec. 2320) since it has been repeatedly held that where the fellow-servant has been shown to be the *exclusive* cause of the injury, the Master was not liable. This, however, does not alter the fact of the general responsibility of the Master for trade accidents under the Civil Code.

pal, assumed risk, contributory and comparative negligence, *volenti non fit injuria*, *respondeat superior*, proximate cause, and other disputed points of a technical nature, which are constantly dragging the workers in the industrial world into civil courts which know little and care less about the technic of industry.

Such a constructive program, leading—at the least—eventually to a code of uniform industrial laws, with special and educated industrial courts for their interpretation, should not necessarily be impossible or Utopian, even under our present constitution. Among federated states, whose population, commerce, interests, form of government, are practically identical, the feasibility and advantage of such a code must be obvious enough. We have but to consider the table at the end of the second paper of this series to note the unanimity with which European governments, of diverse interests and widely variant structure and population, within the incredibly short period of twenty years, have not only defined and adopted the principles of *risques professionnels* and Compulsory Industrial Insurance, but, in order to accomplish this, have divested themselves of many of the older forms of law. Not only is this true, but the new statutes and forms adopted by the various governments conform so closely, in structural details and results achieved, to a common type, that their intelligent and philosophic study becomes an easy matter when the root-form is once mastered.

But it is in vain that we examine our statute books for any evidence of such orderly or concerted plan, either within any state or between any groups of states, in the evolution of legislation bearing on the accidental disabilities of workmen. The variety and confusion of our state laws and decisions would more than justify Voltaire's comment on the French laws of the eighteenth century—that he had to change laws about as often as his journey obliged him to change horses.

After a historical study of the systematic evolution, in foreign countries, of the movement toward rectification of these and other conditions of industrial injustice which are still unaltered in our own cradle of liberty, it becomes evident that several factors are everywhere essential to a successful solution of the problem. There must be:

1. Knowledge of, and interest in, the evils of the present situation by the general and industrial public, adequate to send to our legislative bodies a small but compact and representative party, organized solely on the platform of reform in industrial law. Such a party should preserve an autonomy independent of the other parties, and should secure legislation through a judicious use of the balance of power. This is European history.

2. A body of statistical data for the use of publicists and law-makers, should be secured through bureaus authorized to collect and publish such information. These bureaus are now maintained by the Federal government, and by the states of Wisconsin, Massachusetts and New York, and the writer takes this occasion to express his obligation to their publications. In several states the reporting of industrial and railroad accidents is already obligatory (Wisconsin, Massachusetts, and to the Federal Gov-

ernment through the Interstate Commerce Commission). The usefulness—necessity—of such sources of authorized statistics is also a matter of European history.

3. A body of law-makers, disinterested enough to escape local and corporate influence, and skillful enough in the practice of legislative technic to frame a series of *valid* measures which will adequately meet the present situation. In our second paper we have already referred to the usefulness of this permanent class of professional men among European law-makers.

That laws "which stay laws" are not easy to frame, may be seen by a partial enumeration of our own failures of the last few years:

(a) The Federal Employer's Liability Act of 1906, declared unconstitutional; corrected and now operative as the Employer's Liability Act of 1908.

(b) A complicated Federal Workmen's Compensation Act, introduced by Representative Sabath of Illinois, 1908. This bill sought to abolish ordinary negligence, and made employers liable for everything except the results of the workman's gross carelessness. An elaborate schedule of compensations accompanied the measure, with provisions for their enforcement. The bill died a well-merited death in the Committee on Judiciary after being printed.

(c) In 1902, Maryland passed an accident insurance law, exempting any employer from liability for injuries, provided he deposited with the Commissioner of Insurance—who thereupon became the arbiter of any claim subsequently arising—a sum sufficient to insure all of his workmen. This law was declared void because it gave a commissioner judicial power, and denied a plaintiff the right of trial by jury.

(d) In 1903 a Massachusetts commission, appointed by Governor Bates, and headed by Labor Commissioner Carroll D. Wright, with a wide and intimate knowledge of the local situation and after a prolonged study of conditions elsewhere, reported a very carefully prepared Workmen's Compensation Bill. The bill was unceremoniously smothered in a legislative committee.

(e) Massachusetts passed in May, 1908, a law allowing employers to make optional exemption contracts with workmen, in consideration of certain mutual insurance approved by the State Insurance Commissioners. No employer—after eighteen months—has availed himself of the provisions of this act.

(f) A similar bill was introduced in 1907-8 in Illinois, but failed of enactment.

This list of partial or total legislative failures is by no means complete, but it serves to demonstrate that law is less elastic than industry, and to illustrate the various stages of the thorny path which all industrial law must traverse before arriving at the assured dignity of appearing in two editions of a statute book.

With the private and political pitfalls prepared for bills which do not become laws, the average student of economics has little sympathy; but we owe a duty of encouragement and assistance to those law-makers who

are honestly seeking to recognize and overcome the legitimate difficulties in the way of preparing a law which will be effective, and which will at the same time escape fatal contact with constitutional barriers. Nor can we ignore the fact that these times are crucial for many aspects of the American Constitution itself, and for many state charters. It is a fair question whether, in the interest of the entire social and industrial economy of the nation, either the Federal or the state governments will not have to yield some measure of that legislative and executive autonomy, which the framers of our time-honored codes and constitutions thought was necessary to preserve the balance of power

Whether in the ultimate working out of these reforms the end is to be reached :

1. Through cooperation of state and federal commissions;
2. Through constitutional amendments, bringing our state and federal charters down to date;
3. Through revision, unification, codification of our state and federal laws; or
4. Whether we are on the eve of working out the principles of compulsory insurance and professional risks by the technic adopted by some one of the European nations, it is not for the writer to say: But it is safe to express the conviction that legislators and lawyers must soon seriously open their minds to the knowledge that our country has now reached that historical position to which all nations in the past have inevitably come—where farther progress is hampered both by the decay of the old system of law, and by the confusion incident to the attempted application of old laws to new sets of principles and conditions.

PROPRIETARY MEDICINE PROPAGANDA.

If any of our members are still guilty of prescribing proprietary medicine, it would be well for them to read the following screed which is being published in every local paper in Illinois by the Lydia E. Pinkham Company. No stronger indictment of the proprietary medicine trust could be given than that found in these few lines: "The Value of Proprietary Medicines is proven by the very large percentage of physicians' prescriptions for the same remedies found in every drug store in America, but, as they are written in Latin, few patients realize this fact.

"The old standard proprietary medicines like Lydie E. Pinkham's Vegetable Compound, that have stood the test of time, deserve a place in every family medicine chest, and it is most certain they would not be prescribed by physicians if they were able to devise a formula equally as efficacious."

ILLINOIS MEDICAL JOURNAL

THE OFFICIAL ORGAN OF THE ILLINOIS STATE MEDICAL SOCIETY.

GENERAL OFFICERS 1909-10

PRESIDENT - JONATHAN L. WIGGINS, EAST ST. LOUIS
FIRST VICE-PRESIDENT - CLIFFORD U. COLLINS, PEORIA
SECOND VICE-PRESIDENT - JAMES E. STUBBS, CHICAGO
SECRETARY - EDMUND W. WEIS, OTTAWA
TREASURER - EVERETT J. BROWN, DECATUR

(Ex-officio Clerk of the Council.)

EDITOR - GEORGE N. KREIDER, SPRINGFIELD
522 Capitol Avenue.

ASSISTANT EDITOR - GEORGE EDWIN BAXTER, CHICAGO
4603 Evanston Avenue.

THE COUNCIL

CARL E. BLACK, JACKSONVILLE.	J. WHITEFIELD SMITH, BLOOMINGTON.
H. C. MITCHELL, CARBONDALE.	J. Q. ROANE, CARLYLE.
M. L. HARRIS, CHICAGO.	J. W. PETTIT, OTTAWA.
J. F. PERCY, GALESBURG.	J. H. STEALY, FREEPORT.
W. K. NEWCOMB, CHAMPAIGN.	

DECEMBER, 1909.

COMPENSATION FOR INDUSTRIAL INJURIES.

The three articles upon "Compensation for Industrial Injuries" which Dr. W. H. Allport contributes to the current numbers of this journal have attracted wide attention, not only from the medical, but from the legal profession, and are not the less readable because a few heads are hit. We commend them also to would-be legislators. The subjects they discuss have received the thoughtful attention of many practical economists; but the great American public has been content to let this matter drift, not giving the subject that consideration which it warrants, except when some shocking calamity like that at Cherry brings it to their attention. Even then the consideration is spasmodic only, and the subject is soon forgotten.

These articles will make the reader think, and think hard, and, while they are perhaps a little severe on courts and ancient maxims of law, there is good backing for their criticisms in President Taft's recent Chicago speech very severely criticising other aspects of the same laws.

The first two articles are devoted to the European growth of the principle of compensation for workmen's injuries. A comparison of the

industrial protection afforded in Europe with that available in America is not favorable to our humanity, and exhibits an enlightened industrial policy in foreign nations which we cannot afford not to follow. Probably the best modern law from an American standpoint is the English Workmen's Compensation Act of 1906, which does not destroy existing legal remedies, but rather supplements them. The law is regarded with great favor in the United Kingdom, and is the latest exposition of English views on this subject. The English system; it will be noted, gives no recognition to compulsory insurance, and the future policy of our own nation or states thereon is merely problematic.

The question of compulsory insurance, as set forth so clearly and forcibly in these "Studies," is one that is receiving too little attention in this country. It is true that many employees' relief associations have been formed, but the agreements of employees to waive actions for damages, and accept in lieu thereof a certain insurance from such associations have not been received with favor by the courts, and many states have prohibited such action by statute.

It is well to consider that some of the difficulties surmounted under European laws could not, by reason of our constitutional safeguards, be easily met in this country, however desirable the result might be. For example: trial by jury has in European countries been largely abolished in industrial injury cases. Under our Constitution, while trial by jury can be waived, yet in most suits at common law either party has the right to demand a jury; and that a jury trial delays the rapid determination of suits, and gives more opportunities for reversible irregularities, is hardly to be disputed. It will also be noted that under European laws, excepting the English, special tribunals exist for the trial of industrial cases. This is hardly possible under our jurisprudence, although there would be authority and precedent for establishing separate courts dealing only with these questions as they develop interstate aspects. It is probable, however, that there would be no need of special tribunals.

The third article treats of the advance of laws looking to the protection of the workmen in this country, and of the tardy awakening of our Rip Van Winkle legislatures. The writer points out very clearly the development of this idea, which is especially apparent in our last Federal Liability Act. Under this Act, the doctrine of fellow-servant is practically abolished, and contributory negligence is no longer a defense, but is to be considered in mitigation of damages. Before this, however, we had the Safety Appliance Acts, which are accepted by all as humanitarian measures, indicating the trend in the direction of protective legislation. Many states are now also trying to pass employers' liability acts, following the federal model. As an example of freak legislation, the writer notes a most remarkable statute recently passed in Mississippi, which makes a *prima facie* case against a railroad, where any one, even a trespasser, is injured on a right of way.

The twilight zone between federal and state jurisdiction is often a difficult one to illuminate, but where both state and national governments enact employers' liability acts there should be no opportunity for refuge

in this zone. These laws, together with the Child Labor Laws, Factory Inspection Laws, and Hours of Employment Laws, all show to the thoughtful student that we are tending toward absolute liability on the part of the employer for workmen's injuries. And why not? A locomotive is destroyed in a collision; the loss is included in the operating expenses of the railroad; the company is entitled to earn a fair dividend, and hence the cost of this engine eventually comes from the public in the payment of rates. On the other hand, an engineer in the employ of the company is crippled in the same collision; why should not the railroad company repair him as best they can by the same automatic payment for his damages, with the amount charged off to operating expenses, and rates made to cover the same? The cost should, and does, come from the public in both instances; but in the last instance, and under existing conditions, only *via* a devious and expensive route.

If the time of absolute liability of the employer to his workmen shall come—and articles like these will tend to bring it about—the amount of recovery should be fixed and paid into court, and the fee of the lawyer also be determined by the court; thus we will be relieved of the “contingent-fee lawyer,” and the professional medical expert, neither of whom has added any luster either to the medical or legal profession.

The writer relegates to the junk heap the fellow-servant doctrine, assumed risk, contributory negligence, *volenti non fit injuria*, and other doctrines well known and established, though now somewhat disfigured by legislation and decision. Possibly the farmer, or other small employer, who thinks he selects competent servants and sends them into a field where one is injured by the carelessness of the other, may not be inclined to agree in the total abolition of the fellow-servant doctrine. A majority of our states have now abolished this doctrine as to employees of railroads, on the theory that railroading is an extra-hazardous business; and the courts have sustained this legislation altogether on the theory of classification of hazards. In Illinois the question of fellow-servant is usually one for a jury, and the average jury does not waste much time determining this point. Laws upon these subjects should be uniform in the various states. This can be accomplished only through cooperation of state and federal commissions, as suggested by the writer.

The writer takes a few pokes at corporation lawyers, but we are not convinced that the lawyer who gives his time to corporations is compelled to chloroform his conscience while he is so doing. The present administration at Washington took an eminent corporation lawyer as Secretary of War, another as Attorney-general, and another as Solicitor-general of the United States. Neither do we care to believe that corporation lawyers have any pull with any courts or judges.

These articles evidence great study and research; we have reason to know that the law is therein correctly stated and its consideration will be of great assistance to the student of live questions. They will be helpful to our medical public in directing their attention to the consideration of a great subject upon which radical legislation is bound to result within a few years.

DR. N. S. DAVIS AN ORIGINAL PROHIBITIONIST.

A writer in a recent issue of the *Chicago Tribune*, on the history of prohibition in Chicago, has the following statement regarding the attitude of Dr. Davis on this question: "A Democratic prohibitionist was an entirely unknown quantity in any political algebra. The only recorded instance was Dr. N. S. Davis, who was an outspoken advocate of both the principles of Jefferson and enforced teetotalism, and he stood so high, both professionally and personally, it was generally conceded he had earned the right to do as he pleased. No lesser man, however, could have taken so inconsistent a position and got away with it."

ILLINOIS AND "ROTTEN" MEDICAL EDUCATION.

The Southern Illinois Medical Society held its annual meeting in East St. Louis on November 4 and 5. The sessions were probably the most largely attended of any this society has ever held, and the program was of an exceptionally high and interesting order. Among other important actions of the society, the following resolution was unanimously adopted:

WHEREAS, It has been brought to the attention of the members of the Southern Illinois Medical Society from several sources that Illinois has become one of the "rotten spots" of the United States in medical education and medical licensure and,

WHEREAS, In former years the State of Illinois was ranked among the five highest in matters of medical education and medical licensure, and

WHEREAS, The Southern Illinois Medical Society has always been on record as demanding a high standard of medical education and of admission to practice: Therefore, be it

Resolved, That the Southern Illinois Medical Society without prejudice toward our Board of Health, but solely for the information of its members and other physicians interested, do hereby request the Secretary of the Illinois State Board of Health to explain through the official *Bulletin* of the Board or through the columns of the ILLINOIS MEDICAL JOURNAL why Illinois should bear the stigma of being one of the plague spots of this country in medical education, medical examination and medical licensure.

We wish to take this opportunity to say that the columns of the ILLINOIS MEDICAL JOURNAL are open for the discussion of this important question, and we hope the Secretary of the Illinois State Board of Health will avail himself of them to explain to the profession of the state the causes which have conspired to give our fair state its very undesirable position and reputation in medical education, medical licensure and medical practice.

ILLINOIS MEDICAL DIRECTORY.

The American Medical Association is preparing to issue a medical directory of the State of Illinois based on the matter contained in the second edition of the American Medical Directory, with corrections and

additions bringing it up to date, and making it a complete directory of the medical profession and medical affairs for the state. Beside all the matter contained in the Illinois portion of the American Medical Directory, the book will contain the names of the section officers and standing committees of the Illinois Medical Society, as well as the names of the officers, members of the council, standing committees and boards of the Chicago Medical Society and of the district branches of that body. It will also contain the office and residence telephone numbers of all Chicago physicians. The Illinois State Medical Society has ordered a sufficient number of copies of this book to supply each member of the state society with a complimentary copy, which will be sent him without cost as one of the privileges of membership in the state society. These copies of the directory are supplied to the society at cost, and are for the exclusive use of the members. Cloth-bound copies will be sold to non-members and business houses desiring them at \$2.00 each. It is, therefore, important, under the circumstances, that the members of the Illinois State Society do not violate the privileges of membership given them by allowing these complimentary copies to go out of their hands. All members of the state society are, therefore, especially requested not to give away or sell the copies of the Illinois State Directory which they will receive.

THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Last month the now venerable College of Physicians of Philadelphia dedicated a new home with great pomp and ceremony, during which honorary membership was granted to a number of physicians from other cities, among them Dr. Frank Billings, of Chicago.

This organization has had a long and honorable career and undoubtedly has had much to do with maintaining the high standard of professional conduct which has always prevailed in the City of Brotherly Love.

In probably no other community in America has the medical profession been so highly esteemed as in Philadelphia, where the term physician and surgeon has always stood for gentleman and scholar.

The library and museum of the college are of immense value and world renowned. The beautiful building which has been erected for the use of the college represents a large sum of money, much of which was given by non-professional men who took delight in honoring an organization of this character.

In 1787, when the college had its origin, Philadelphia was already one hundred years old, had about 40,000 inhabitants, and the entire wealth of the city was probably much less than that represented in many of the smaller cities in Illinois to-day. For many years the college was hampered for funds, but it kept up an organization and finally the day of deliverance from poverty was at hand, and from that time forward it has had an increasing influence on the professional life of the city.

Our object in calling attention to the college at this time is to emphasize the importance of an organization in our smaller cities, the main-

tenance of a high standard of professional ethics and the formation of a library and museum which might be made of great value not only to the profession, but to the citizens in general.

An honorable medical organization anywhere maintaining a high standard of excellence and freedom from party bickerings can and will receive eventually the support from the general public to which it is entitled. On the other hand, a medical society, great or small, that fails to respond to its possibilities and busies itself with the petty things of life brings discredit on the profession it is supposed to represent.

We hope that this lesson will be appreciated by our county societies and that they will profit by the history of the College of Physicians of Philadelphia.

Correspondence.

A WORKING KNOWLEDGE OF SIMPLE REFRACTION.

DETROIT, MICH., Nov. 12, 1909.

To the Editor:—At the late meeting of the Ophthalmic Section, A. M. A. (eleven hundred members), the undersigned were appointed a committee to promote *a working knowledge of simple refraction* among family physicians. It has secured abundant evidence that such knowledge has been acquired and is now used by many physicians, so proving that all medical men can do likewise, if they so desire. But that the practice may become uniform, it is necessary that the State Boards of Registration require it for license and medical colleges teach it in course.

Recognizing its importance, the Michigan State Board of Registration, on Feb. 12, 1909, notified medical colleges that thereafter it would grant licenses to practice only to such applicants as demonstrated, on a living subject, with simple spherical lenses and test types, their working knowledge of simple refraction. Your committee is confident that every State Board of Registration would make a like requirement if it grasped the situation; and then all medical colleges would qualify their students therefor. Recalling the fact that our system of medical education makes no adequate provision for training the family physician in simple refraction, and that it be impossible for experts to meet the needs of all the people in this respect, it is plain that this class of cases had no source of relief other than the optician. But if the State Boards require a working knowledge of simple refraction for license, the needs of all the people will be fully met by qualified physicians, and the optician resume his normal vocation as a spectacle merchant.

Recognizing your great influence in medical affairs, and assuming your vital interest in enlarging the field of family practice, your committee confidently ask your active endeavor to persuade your "State Board of Registration" to require "a working knowledge of Simple Refraction"

from each applicant for license. Each member of your committee stands ready to assist you to a fuller understanding of the situation, or to cooperate with you in seeking its relief. With thanks for your aid and a report of your success, we remain sincerely yours,

LEARTUS CONNOR, Detroit, Mich., Chairman.

A. R. BAKER, Cleveland, Ohio.

J. THORINGTON, Philadelphia, Pa.

ARMY MEDICAL CORPS EXAMINATIONS AT WASHINGTON, CHICAGO AND SAN FRANCISCO.

The Surgeon General of the Army announces that the War Department has appointed permanent boards for the preliminary examination of applicants for appointment in the Medical Corps of the Army to meet in Washington, D. C., Fort Sheridan (near Chicago), Ill., and San Francisco, Cal., in addition to the usual preliminary examination boards that are assembled at various Army posts throughout the United States from time to time. The permanent boards will hold sessions on the second Monday of each month.

A limited number of successful candidates will be appointed first lieutenants in the Medical Reserve Corps (salary \$2,000 per annum) and assigned to Army posts until the next session of the Army Medical School, when they will be ordered to attend the school as "student candidates."

Applicants must be citizens of the United States, between 22 and 30 years of age, graduates of reputable medical schools, of good moral character and habits, and shall have had a year's hospital training after graduation, or its equivalent.

Full information concerning the examination can be procured upon application to the "Surgeon General, U. S. Army, Washington, D. C."

NECESSITY FOR ORGANIZATION: COMMITTEE REPORT.

While specific features of the duties of this committee have for reasons of expediency been assigned to special committees, nevertheless the public relations committee is held responsible by the society for all matters of public policy and legislation having a sanitary, hygienic or other medical relation. The enormity of the task before us necessitates the strictest cooperation of the entire profession with the work of the public relations and organization committees.

That feature of the public relations committee work alone which has to do with the state legislature is found to be a very strenuous one, especially during legislative sessions, as was well illustrated in the Forty-sixth General Assembly, when an attempt was made by the solons at Springfield to pass a special medical act, sectarian in nature, the object of which was to secure the right to practice medicine by certain cults at a standard of preliminary and medical education lower than those already in the field, under the pretext that its followers are not practicing medicine. The public relations committee held, and their position was approved by the council of the society, that regardless of the methods or limitations of

treatment employed, practitioners are alike and that they must make diagnoses, must differentiate between health and disease. To treat a disease without knowing what it is, is merely guess work, a dangerous procedure and an imposition on the patient. For these reasons there should be one standard set for all practitioners of medicine, regardless of the methods of treatment. Any one complying with that standard shall be granted a license to practice by whatever method he chooses.

The fight made by the society against the passage of these vicious measures was the most Herculean task ever undertaken by this organization along legislative lines. Powerful political and financial influences, together with chicanery and perfect team work, were all operating to enact these measures into law, and it was only by a last supreme effort, by a semi-organized profession, that we were able to prevent the measures from being placed on the statute books.

Our recent experience is an indication of what confronts us at future sessions of the legislature, and we should begin to organize now for the fight that is bound to come. Great care is needed at the present moment in selecting your committee and sub-committeemen, for active and enthusiastic men for the work is much more essential to successful legislative work than enthusiasm aroused at the last hour to do work which should have been accomplished weeks before. It is really more harmful to have a member on a committee who is expected to do certain work and does not, than to have no man at all; therefore, in organizing for the coming year, only those members who are willing to do the work, and incur the sacrifice necessary, should be selected on committeeships.

The practice of illegitimate medicine was never more active than at present, and unless we are energetic at the polls and in the legislative halls as are the exponents of quackery, we must expect to suffer defeat at their hands. We leave the law-making to the politicians, most of whom care nothing for us. We allow ourselves to be duped and imposed upon on every side with the most idiotic complacency. But we have nobody to blame but ourselves, for we can right these wrongs just as soon as we will pull together for that purpose. "Many a shameless bit of medical jobbery is smuggled into law simply because the men with power hear only the quacks' side and not a word is uttered by us. The profession by such silence is not only renegade to its humanitarian function, but it is renegade to its own interests." Periodic paroxysms of perverted oratory and spasmodic attacks of strenuous travail has never yet accomplished useful results. We may resolve and memorialize until the end of time, but unless we put some force behind the memorial, we shall continue to be treated with the paltry consideration we have always received.

Shall we allow such abuses to continue forever? It is noteworthy that physicians are beginning to realize as never before the benefits of organization, not only to individual members, but also to the medical profession in its complex relations. The profession is becoming aroused to the necessity of organizing for something more than purely scientific purposes. This is true not only in the United States, but in the Old World. The beneficent influence of such organization is its power to stimulate men to work. The major portion of important and far-reaching constructive work by members of the medical profession is performed

under this stimulus. To belong to the city, county or state society, then, is, of course, a necessity at the present day, for by organization the profession gains added weight, influence, dignity and honor.

All medical men should be thoroughly acquainted with their rights, privileges and power for safe-guarding their own vital interests, as well as the interests of the community. It is the duty of every one of us to fit himself for the great constructive epoch on hand. No one thing promises greater and more widespread gain to the profession than the fact that from one end of the country to the other leading physicians are actively entering the political arena and are becoming interested in civic problems. We sincerely hope for more active participation in public affairs on the part of Chicago physicians.

It is well that we should from time to time call the bosses to account; in other words, we should teach them that it is not good politics to scorn the medical profession, and that we consider it good politics and good medicine to punish those who vote against the express desire of their medical constituents. A candidate for election is more amenable to reason and proper argument before election than after, and we recommend that the committee on organization perfect its organization so that when the policy and legislation of this society shall have been decided, the conclusions can be readily communicated to each member and by him presented to the various candidates for Senate and House, and pledges of support secured.

There is no denying the fact that an organized medical profession comprising 11,000 members, as we have in Illinois, can accomplish any worthy purpose it sets out to achieve. A united medical profession in this state would be a force which, if properly used at the psychologic time, would make good to put any just law it wanted on the statute books, as well as defeat any attempt to pass vicious legislation.

Other problems of vital importance confront us. There is no denying the fact that the legitimate practice of medicine in the United States has fallen on perilous times. This is not the cry of "wolf, wolf," but is evidenced by the writings of eminent men and by the unrest and agitation of the medical profession the world over, whether the present condition is due to the various new cults and pathies, or because sanitation and preventive medicine are reducing disease to a negligible quantity, or the abuse of medical charity as practiced in our hospitals and dispensaries is chiefly to blame or the unhealthy increase in the number of doctors is a factor, but whatever the cause, every physician should look the situation squarely in the face.

Within the last year you had presented to you figures calling your attention to the enormity of the abuse of medical charity, a condition which was found little short of disgraceful. You were shown by figures that the abuse has grown here to such enormous proportions that estimated in currency it amounts to a great many millions annually; a critical situation not confined to Chicago, but recognized as a burning question the world over. In the old world it has become a veritable curse to the profession. In many parts of the Austrian, German and British empires it has become necessary for the profession to organize into med-

ical protective leagues in sheer defense of their means of existence. In our country similar conditions are being rapidly brought about, as shown by the formation of such organizations in New York, Philadelphia and elsewhere.

The work done the last year by the Chicago Medical Society, through its committees on abuse of medical charity and contract practice, which allowed of full discussion of its various phases, was most praiseworthy, and we hope it will be the nucleus of a great campaign on medical economics. Let us get together, present a more tangible brotherhood, or the common foes of legitimate medicine, ignorance, charlatanry and faddism will invade in still greater hordes the field that rightfully belongs to us.

A little more confidence and respect for ourselves and our calling; a little more tolerance for our fellow-workers and a recognition of this all-important fact, that the public will trust and respect us only to the extent to which we trust and respect ourselves; this is the secret of a new era of professional prosperity.

CHARLES J. WHALEN, M.D.,

Chairman of Public Relations Committee.

SHALL THE OLD OFFENDERS BE ADMITTED? NO.

CAMARGO, ILL., Oct. 27, 1909.

To the Editor:—In your October issue, page 444, you say, "The question is, is it wise to try to reform some of these old offenders by getting them to join the society and then trying to show them the error of their way, or shall we ignore them entirely?"

You answer this in the affirmative, "and there is where we mix." If a man graduates in medicine and thereby receives the amount of culture that ought to be an incentive to high and noble purposes, and then so prostitutes his attainments as to be guilty of "gross violations of the code," I am in favor of him "bringing forth fruits meet for repentance" before his name is placed alongside those of men who have been pursuing an honorable and upright life.

He must renounce his false gods and swear eternal allegiance to the true spirit of medicine, else his armamentarium for doing evil and practicing quackery has been greatly strengthened. This is made all the more apparent if you will remember some of the papers read at the last state meeting, where "Legitimate Advertising" was endorsed, leaving the deciding as to what constituted legitimate advertising solely to the advertiser, I suppose.

No, we do not want to become water-logged with repentant quacks. They must not only receive a good Methodist sprinkling, as an outward sign of an inward grace, but have a complete immersion in the pure crystal fountain of Medical Ethics, and though their sins may have been scarlet, they must be washed white as snow. Then we will receive them into full membership, and all go forward and take them by the hand, and wish them God-speed and hope they will locate as far as possible from us. Yours fraternally,

W. A. WISEMAN.

COUNTY AND DISTRICT SOCIETIES

ADAMS COUNTY.

The Adams County Medical Society met October 11 in the Elks club rooms. In the absence of the president and first vice-president, Dr. Knox, the second vice-president, called the meeting to order. Those present were Drs. Williams, W. W. and J. G., Nickerson, Rice, Ashton, Shepherd, Whitlock, Lierle, Wessels, Brenner, J. B. and Kirk Shawgo, Gabriel, Knox, Gilliland, Werner, Christie and Wells. Also Dr. Green, of Quincy, and Dr. J. L. Wiggins, of East St. Louis. No quorum being had before luncheon, immediately thereafter the society was called to order, the usual order of business set aside, and Dr. J. L. Wiggins, president of the Illinois State Medical Society, was introduced and took for his theme "Exact versus Surgical Diagnosis in Operative Procedures." The paper was one of profit because of Dr. Wiggins' large and varied experience and was warmly received. Since the doctor's train left at a very early hour, no time was afforded for discussions and questions. By a unanimous rising vote the thanks of the society were tendered the speaker, and by motion Dr. Wiggins was enrolled among the distinguished men who are now honorary members of the Adams county branch. Miss Irene Griswold, Quincy's efficient visiting nurse, was presented to the society and made a pleasing talk on her work and the need of help, cooperation and assistance from the physicians of Adams county. Mrs. W. P. Ringland, late head nurse of Blessing Hospital, but now in the visiting nurse work in Chicago, also addressed the society along the same lines.

Adjourned.

CLARENCE A. WELLS, Secretary.

CENTRAL ILLINOIS DISTRICT MEDICAL SOCIETY.

The thirty-sixth semi-annual meeting of the Central Illinois District Medical Society was held Tuesday, Oct. 26, 1909, in the Woodmen's Hall at Pana. The following program was given: President's address, Dr. Don West Deal, of Springfield; subject not announced, Dr. Will C. Wood, Decatur; discussion opened by Dr. G. J. Rivard, of Assumption. "Puerperal Fever," Dr. W. J. Eddy, Shelbyville; discussion opened by Dr. J. Huber, Pana. "Experience in Obstetrical Work," Dr. J. J. Conner, Pana; discussion opened by Dr. J. N. Nelms, Taylorville.

COLES COUNTY.

The Coles County Medical Society met at Mattoon, Oct. 19, 1909, at the Public Library at 8 p. m. Dr. Wiggins was with the society and gave a good paper. The following program was carried out in full: "Artificial Feeding of Infants," Dr. W. J. Carter. Discussion by Drs. Vanatta, A. T. Summers and Bennett. "Surgical Diseases of the Abdomen in Children," Dr. J. T. Montgomery, followed by a discussion. "Exact vs. Surgical Diagnosis Governing Operation Procedures," Dr. J. L. Wiggins, President Illinois State Medical Society, East St. Louis.

R. H. CRAIG, Secretary.

COOK COUNTY.

CHICAGO MEDICAL SOCIETY.

A regular meeting was held Oct. 13, 1909, with the president, John A. Robison, in the chair. The subject for the evening was a "Symposium on Fractures." Papers were presented as follows: "Diagnosis," by William Fuller;

"Pathologic Fractures and the Treatment of Non-United and Badly United and Suppurating Fractures," by Carl Beck.

Abstract: Fracture of bones is a symptom of several pathologic conditions, among them metastatic tumors, fibrosis and cystic degeneration. There are some cases of unexplained genuine fragility. Two cases of fragility of bones with fractures are described and a number of skiagraphs taken at different stages of the disease are shown. The disease treated with hypodermic injection of adrenalin, with cure resulting. Remarks on pathology and experiments of Rossi. Demonstration of patient.

"Ambulatory and Open Treatment," by William Schroeder; "The Treatment of Compound Fracture," by Edward H. Ochsner.

Abstract: The subject is discussed under: 1. First aid. 2. Avoiding amputation whenever possible. 3. Prevention of septic infection. 4. Prevention of tetanus. 5. Drainage. 6. Description of retention dressing. 7. What simple fractures is it desirable to deliberately make compound and treat by open suture.

Discussion opened by William E. Morgan, S. C. Plummer, A. E. Halstead, and E. W. Andrews. The following demonstrations were given: "X-Ray Plates of Fractures," by P. S. O'Donnell; "Noguchi Method, Using Human Amboceptor," by Thomas L. Dagg.

Regular Meeting, October 20, 1909.

A clinical meeting was held Oct. 20, 1909, with the following cases reported: By A. D. Bevan, 1. "Sacrococcygeal Tumor."

Abstract: Tumors of this type bear out Colnheim's theory and are due to development of embryonal rests at the caudal end.

2. "Carcinoma of the Larynx."

Abstract: Operated on six years ago without any recurrence. The man speaks remarkably well, can be heard in any ordinary room, and he does this without any larynx and without any communication between the mouth cavity and the respiratory tract.

Discussion of the subject of carcinoma of the larynx, the very good prospect of permanent cure from early operation and the very excellent condition in which the patient is left without a larynx, both from the standpoint of general comfort and his ability to talk.

3. "Ulcer of the Stomach, Simulating Hour-Glass Stomach."

Abstract: Woman had lost 45 pounds and could swallow only small amounts of fluid without regurgitation. Just after swallowing bismuth in water an x-ray picture was taken showing retention at the lower end of esophagus. Another taken 20 minutes later showed the stomach divided into two pouches; operation showed mucous membrane of stomach only contracted, the muscular and peritoneal coats being normal. Patient made good recovery after operation similar to Heinecke-Mikulicz.

4. A young man with history of an ulcer over a year before presented the same peculiarity on x-ray examination. Operation disclosed a constriction one and one-half inch from the pylorus that hardly admitted the little finger.

By E. A. Fischkin, 1. "A Rare Case of Urticaria Pigmentosa (Xanthelasma-moidea)."

Abstract: Child 18 months old. The eruption covers the entire body, most abundant on face, neck and extremities, consisting of closely set nodules of distinct yellow color, resembling a xanthoma. The disease commenced in the first three months of life.

2. Two cases of Lupus Erythematosus.

Abstract: Face and scalp showing the effect of Finsen light and of carbon dioxide snow treatment.

By Julius Grinker: 1. Tumor in Region of Hypophysis.

Abstract: Face and scalp showing the effect of Finsen light and of carbon dioxide developed headache and blurred vision in April, 1909. For one year previous he showed tendency to somnolence and occasionally saw black spots before his eyes. Examination reveals bitemporal hemiopia and slight acromegalic enlargement of skull. The radiogram shows considerable widening of the sella turcica.

2. Case of Progressive Muscular Dystrophy. Type: Pseudohypertrophic muscular atrophy.

Abstract: Boy, aged 5, negative family and personal history. Walked at 1 year, but unlike other children. Though always somewhat clumsy in his gait, he is now unable to walk up a flight of stairs, owing to weakness of the muscles of the back and lower extremities. Shoulder-girdle considerably below normal, but posterior leg-muscles appear firm and hypertrophied.

By Charles M. Jacobs—1. Cases of Torticollis.

Abstract: Before and after operation. Deformity post-operative.

2. Lumbar Pott's Disease.

Abstract: With beginning psoas abscess and spasm of the psoas muscle.

Regular Meeting, October 27, 1909.

A regular meeting was held Oct. 27, 1909, the subject being a "Symposium on Brain Tumor." The following papers were presented: "Diagnosis, Symptomatology and Differential Diagnosis," by William G. Spiller, Philadelphia, Pa. "The Surgery of Brain Tumor," by Harvey Cushing, Baltimore, Md. The following demonstrations were given:

"Anatomic Preparations Showing the Various Steps in Brain Surgery and Brain Localization," by W. J. Marvel.

Abstract: The cross-bow incision for exposing subtentorial region for tumors of the cerebellum and cerebello-pontine angle. The lateral reflection of skin and muscle flaps—the bilateral opening of skull, allowing cerebellar dislocation of the normal lobe during manipulation of the other. Specimens demonstrating operations in this as well as in the temporal and frontal regions.

"Roentgenography of Intracranial Tumors."—Max Reichmann.

Abstract: Shows hardened brain with epidural tumor roentgenographed within and without the calvarium.

Dr. P. S. O'Donnell presented plates illustrative of the subject.

Regular Meeting, November 3, 1909.

The meeting of November 3 was a "Symposium on Tuberculosis." The following papers were read: "The Early Diagnosis of Tuberculosis," by W. A. Evans.

Abstract: Discussed the necessity of early diagnosis so that the patient could have benefit of early treatment and cure with less expense and time. Patients now go back and forth between private and institution care. Only 38.7 per cent. of the patients dying this year in Chicago were reported while living, and these were in all stages of the disease, the majority advanced. It is common information that tuberculosis is not diagnosed as early as it should be. The diagnostic use of tuberculin is far more accurate than the average diagnostic procedure and its harmful results few as compared with the thousands dying for lack of early diagnosis.

Regular Meeting, November 10, 1909.

The meeting of Nov. 10 was a symposium on "Pure Foods." The following papers were read: "The New Pure Food Catsup; or, When Is a Chemical Not a Chemical?" by John A. Wesener.

. Abstract: Review of preservation of foods. Smoke, salt, saltpetre, sugar, vinegar, spices, etc.

Catsup. History and general method of preparation. New method by the use of benzoate and benzoic acid. The new pure food catsup, preserved by the use of essential oils, fluid extract of capsicum, excess of vinegar, or by the use of excess of spices. Discussion of three ways of preserving catsup: 1. By the excess of spices. 2. By benzoate of soda and benzoic acid. 3. By essential oils, excess of vinegar and fluid extract of capsicum. Chemistry and preserving action of benzoate, benzoic acid, essential oils, vinegar, capsicum and sugar. Wide distribution of benzoate and benzoic acid. Wholesomeness of catsup preserved by benzoate and benzoic acid.

Can inferiority and deception be practiced by the use of benzoate of soda and benzoic acid; or can such inferiority and deception be disguised by the use of essential oils, excess of vinegar and fluid extract of capsicum?

CONCLUSIONS

1. Benzoate and benzoic acid are medicinally less active than the others used in the preservation of food.

2. By the use of these the flavor of the article preserved is not lost.

3. Flavor produced by vinegar and spices is wholly artificial and does not retain much of the actual flavor of the product that is preserved.

4. Changed conditions in economics have made it imperative for the manufacturer to prepare his food to reach the consumer in a sweet, wholesome and palatable state.

"The Preservation of Meats by Cold Storage," H. S. Grindley, University of Illinois. "Foods from Corn," Theodore B. Wagner, Chicago. "The Enactment

of Food Laws; Their Enforcement and Effect," Thomas Lannen, Chicago.
 "Bleached Flour," George L. Teller.

Abstract: The wheat berry; method of converting it into flour and feed; brief outline of composition of different parts of the grain.

Different grades of flour from the same wheat; why they differ in composition and bread-making qualities.

The coloring matter of wheat flour; where found; has no food value; how removed from the flour.

Bleaching process; how accomplished; the mechanics and something of its chemistry. Residue from the bleaching operation; minute in quantity, substantially all removed, during process of bread making; in no way injurious to the bread-making qualities or to its value as an article of food.

Brief outline of contentions made against bleached flour and fallacy of arguments made in same.

Advantages of bleaching. Removes objectionable color. Assists in keeping flours uniform. Increases the value of wheats otherwise objectionable because of excess of yellow which they contain.

Blending of wheats and its relation to the bleaching of flour.

Summary and conclusions.

Demonstration: "Various Tests for Milk, Human and Bovine" (Apparatus and Technic), Adolph Gehrmann.

NOTE—Discussion on Symposium general and voluntary.

Regular Meeting, November 17, 1909.

The meeting of November 17 was a symposium on "Exophthalmic Goiter;" the following papers were read: "Medical Aspect," by M. M. Portis.

Abstract: Dietetic measures based on the chemistry of the bowel: Hydrotherapy and electrotherapy. Drugs—the old and the new. Serotherapy.

"Pathologic Aspect," by Dean D. Lewis.

"Surgical Aspect," by Alexander Hugh Ferguson.

Abstract: The desirability of early operation in all cases of exophthalmic goiter, except in acute cases, when suitable preparatory treatment should be instituted. The low operative mortality and the excellent result accruing from surgical treatment, makes it the only rational procedure in these cases. Results are apparent within a few days after operation and are lasting in most cases. It is important, however, that the operation should be performed by a surgeon who has a large experience in this line of work. Most of the bad results occur in the work of the inexperienced operator. A wide range of management of cases before operation is a desideratum. The operative procedures that have been found reliable were presented.

Demonstration: "Microscopic and Macroscopic Sections of the Eye," by L. N. Grosvenor.

Abstract: Demonstration of a large number of macroscopic specimens of animal eyes, and various pathologic lesions of the human eye. Microscopic sections of animal eyes, showing variations from human eye. Normal human eye. Pathologic lesions of the human eye. Intraocular tumors—carcinoma, sarcoma, glioma. Perforations of cornea due to foreign bodies and ulcers; many other lesions.

CHICAGO MEDICAL SOCIETY—ENGLEWOOD BRANCH.

Regular Meeting, Oct. 5, 1909.

The Englewood Branch held its regular monthly meeting on Tuesday evening, Oct. 5, 1909, at the Englewood Hospital. Dr. J. P. Webster presented a patient, a colored boy, aged 12 years, who had fallen on an electric wire of high voltage, causing such severe burns of the left arm as to necessitate a scapulo-humeral amputation, extensive and deep burns on the abdomen and destruction of penis and scrotum. The burns on the abdomen, extending nearly through to the peritoneum, healed after a long and tedious course of treatment. An attempt was made to save one of the testicles, but it was so badly damaged that it became necessary to remove it, and later an external urethrotomy was performed on account of the contraction of the periurethral tissue in the stump of the penis. At the present time the boy is in excellent condition, with complete healing of all involved tissues. Dr. V. D. Lespinasse presented two cases of vascular naevi in infants which he had treated by the use of carbon dioxide snow. Dr. J. C. Hepburn presented a patient in which he had excised the lower lip for epithelioma and a patient with rodent ulcer of eyelids in which he had done a radical

operation, with enucleation of the eye, opening and curretting the frontal sinus. No return of disease after four months. The following program was then given: The president, Dr. M. W. Bacon, delivered an address. Dr. G. J. Hagens read a paper on "Puerperal Infection." Discussion was led by Dr. J. G. Campbell. The secretary addressed some "Historical Remarks" to the society. Seventy-six men were present and many availed themselves of the opportunity of discussing the subject of the meeting. Meeting adjourned, after which a light buffet lunch was served. This was one of the largest and one of the most enthusiastic meetings the branch has ever held.

C. HUBART LOVEWELL, Secretary.

A RETROSPECT.

M. W. BACON, PRESIDENT ENGLEWOOD BRANCH, CHICAGO MEDICAL SOCIETY.

To Fellow Members of the Englewood Branch of the Chicago Medical Society:

In casting about for some subject which might be of interest to you as well as voice my appreciation of the honor which you have conferred upon me in electing me as chairman for the ensuing year, it occurred to me that a brief retrospect of the past thirty-five years might be instructive as well as interesting to the members here this evening. Thirty-five years ago the University of Michigan was a well established school of instruction, standing well in the front ranks of medical colleges. Yet a brief enumeration of the advantages then offered to students compared to the modernly equipped college, with its immense hospital facilities, makes it seem like the little old backwoods country school-house as compared with the great universities of the present day.

The teaching was practically didactic. A small country town with no hospital except a few rooms on one edge of the campus, the clinical material was necessarily scarce. During my whole college course I could count on the fingers of one hand all the major surgical operations I saw; this was before the days of asepsis or antisepsis. The year following my graduation Lister proved to the world that cleanliness, wound cleanliness, would prevent suppuration. The operating was all done in the main amphitheatre, the surgeon in his ordinary clothes would shove his sleeves above his cuffs and proceed with the operation, if any scrubbing was done it was before he appeared in the amphitheatre. I remember it was the boast of his admirers that he could do any operation without soiling his cuffs with any blood stains. Abdominal operations and plastic reparative surgery were practically unknown and not attempted. Obstetrics was taught by charts and the manikin and during my college years I never saw one demonstration of actual obstetrics. Gynecology as a science was unknown, and what little was taught came from the chair of obstetrics. Orthopedic and eye surgery seemed far in advance of general surgery. I saw many operations on clubfeet with good and perfect results. In the removal of cataract and correction of squint I have seen none of the present day that could excel our operator of that time. Reductions of fractures and dislocations I believe also would compare well with the present time. Bacteriology was not taught, as at that time no bacilli had been demonstrated except the anthrax bacillus.

Going back to the year 1875, when I was thrown onto the unsuspecting public as fully equipped with medical and surgical lore, it would seem that this year marks the era of the beginning of great discoveries in the bacteriologic world. Running rapidly down the successive years from Lister's great discovery of asepsis and antisepsis, we note the discovery of the micro-organisms of leprosy, gonorrhea, typhoid, chicken cholera, pneumonia, tuberculosis, glanders, diphtheria, tetanus, influenza and bubonic plague, and Behring's serum therapy by antitoxins. Countless experiments are still going on so at the present time we breathe, eat, drink and feel a continuous atmosphere of microbes, a nightmare, as it were, of bacilli. In the good old times we only knew of one bacillus and we did not care much for that. Chemistry was taught, an abbreviated course compulsory, and a more extended course at the discretion of the student. It is fair to state,

however, that many students of that day availed themselves of all the facilities offered. Our teacher in *materia medica* also held the chair of physiology and was a teacher of unusual ability and thoroughness. To this day I can distinctly recall many of his lectures on both subjects. Theory and practice of medicine to which was added what was known at that time of neurology, physical diagnosis and pathology, was handed to us in very good form by Professor Palmer, that positive and staunch old Englishman. His teaching in the main was good; many things, of course, are now supplanted by the newer and more accurate methods of determining the causation of disease and appropriate treatment.

Anatomy as taught by that grand old teacher, Prof. Corydon L. Ford, is one of the most pleasant dreams of my student days. His flow of precise and beautiful language held his audience enthralled. The silence in every part of the great amphitheater during his lecture hour was absolute. I wish to call attention here to the fact that during his earlier years at the University of Michigan he enjoyed the reputation of being a surgeon of exceeding skill and finished technique. I well remember his relating to the class the history of a patient on whom he had operated many years before. A lady in child-birth had suffered a severe injury which left her in a most deplorable condition, with a complete perineal laceration complicated by a large vesico-vaginal fistula. By two operations he was fortunate enough to restore her to a condition of perfect function. Gentlemen, when we consider that this must have been done more than fifty years ago, way back before any attempt at or knowledge of asepsis or antisepsis, it was a surgical triumph calling for the highest measure of praise. Not having the exact data, I do not know whether this antedated the first successful case reported by J. Marion Sims or not. To be an anatomist surpassed by none and equalled by few is honor and fame enough to satisfy any one, and long may his memory remain the heartfelt wish of the writer.

To the younger members of the profession: I would ask the comparison of advantages offered to students of my day and the world of opportunities presented to the student to-day. If you are not wise it is your fault and not lack of facilities for acquiring knowledge.

If my hearers will bear with me I wish to go just a little more into retrospect. A careful study of the program offered to this society for the past year calls for more than passing mention; the varied and wide range of subjects so ably presented would almost make it seem that the harvest was over and that we who are now attempting to fill their places need only to reach out and gather the rich and ripened golden sheaves of knowledge contained in the many able papers presented to this society during the past twelve months. But, gentlemen, the march is onward, not backward, and I ask each and every one of you to put *your* shoulder to the wheel and help us to make this year one to be long remembered as one of good fellowship, scientific advancement and acquirement of knowledge to prevent and combat disease in all its forms and phases. To the retiring president and his valuable aids too high praise cannot be given for their energetic and valuable labors. To my golf loving friends I would say: "May your drives be long and true and may you each and every one land on the fair greens, keep out of the rough and avoid trouble."

PUERPERAL INFECTION

G. J. HAGENS, M.D., CHICAGO.

Puerperal infection is probably the most universally accepted term now used to express all forms of infection during or in connection with the puerperium or childbirth period. It has reference to those infections that enter by way of the female genital tract as well as those that enter the system extragenitally. Infections associated with child-birth were known one thousand years B. C., and probably have existed as long as child-birth. Hippocrates, the father of medicine, wrote of it and spoke of its occurrence in epidemic form 500 years B. C. It has been manifest throughout all time even until the present day. It was the most

dreaded scourge of the obstetricians and midwives before the antiseptic days of Lister, when it made visitations in the form of frightful epidemics, the mortality being as high as 20 per cent. in some of the lying-in hospitals, so that these institutions were looked upon as a public menace and steps were taken to close them.

Semmelweis, in 1847, while interne in the Vienna Lying-in Hospital, deeply impressed and chagrined at their high rate of mortality as compared with the much lower rate outside of the hospital, began an investigation into the cause and was himself convinced that it was due to contact infection brought to the patients by those who attended them. By instituting a system of cleanliness and antiseptics (chlorin water) he was enabled to reduce their mortality from 10 to 15 per cent. down to about 1 per cent. Marvelous as this improvement was, his views were not accepted by the medical profession until about 1870, when Lister announced his application of Pasteur's discoveries in bacteriology to the treatment of wounds. Until then Semmelweis' labors and teachings as well as those of our own Dr. Oliver Wendell Holmes, who had taught prevention of child-bed fever in 1843, were not recognized nor appreciated.

It was from about 1880 until 1900 that the bacteriologic causes of puerperal infection were worked out most definitely and classified. With recognition of bacteriology as the basis for the pathology of the puerperium, the obstetric art was placed on a plane with modern surgery, requiring for its best results the highest kind of surgical skill with a complete and consistent technique. More vigilant than that of ordinary surgery because always dealing with an environment that does not allow of an absolutely aseptic field for operation. More vigilant because of an ever present portal of entry for infection, the placental site. Puerperal infection is always exogenous in origin, never from within the individual herself; though there are good authorities (Alfeld and Kaltenbach) who believe that infection may originate from within. But these few instances could better be classed as indirect infections that have gained access to the system at some previous time of the individual's life from without. The micro-organisms did not originate spontaneously within the woman's body. Of the germs that cause puerperal fever, the streptococcus heads the list as the most fatal, first recognized in about 1865 in the tissues of fatal septic cases, and first cultivated by Pasteur in 1880 from cases of puerperal infections. The *Bacillus coli communis* is probably more often present in cases of infection than is generally supposed, owing to the close proximity to the anal region.

The nurse cannot be too scrupulous in the preparation of a case for confinement and should be mindful of this ever-present source of infection. This is all the more urgent since it is claimed that when the colon bacillus infection is added to a streptococcus infection, the result is much more virulent. The *Staphylococcus aureus* appears to be the only organism of the staphylococcus family that is of consequence in puerperal infection, first recognized about 1880 (Doleris) and definitely classified in 1894, about the time that the importance of the *colon bacillus* was recognized. At about this time we were taught to make vaginal examinations under cover by stroking the index finger over the perineum before its entrance into the vagina, a very efficient method of carrying them toward a dangerous field. This practice is not uncommon by the thoughtless even to-day.

The gonococcus plays an important part in puerperal infections. It was so recognized in 1893 (Kröenig). It usually causes a mild form of infection that tends to a spontaneous recovery, yet fatal cases have been observed. That diphtheria sometimes is the causative factor has been demonstrated. The false membranes seen in the genital tract are, however, mostly caused by other micro-organisms and represent a necrotic slough. The gas bacillus of Welch (1900) is also a recognized cause of puerperal infection. A form of infection called sapremia is said to be due to the invasion of the uterus by putrefactive organisms mostly of an anaerobic nature and the organisms that produce the putrid ill-smelling copious vaginal discharge which by many is associated with a serious infection calling for vigorous antiseptic treatment, whereas the reverse is more often true.

The most serious infections, such as the streptococcus or staphylococcus, unless mixed with putrefactive organisms, have no odor to the discharge or lochia. I

recall a case in this hospital at full term, with death of infant five days prior to delivery, during which time the amniotic fluid came away and became very putrid and profuse, but the patient's condition remained normal and no treatment of any importance was instituted except external cleanliness. On the fifth day she was delivered of a macerated dead fetus and she made a splendid recovery. I had two similar cases since treated by non-interference and both made perfect recoveries. I believe those cases are often over-treated by too much manipulation and undue interference.

The pathologic lesions following puerperal infections may vary from a mild local superficial infection to the most virulent and rapidly fatal septicemia depending on different factors in an individual case. Taken collectively, it may be said to depend upon the balance of power between the invader and the individual attacked. It may take the form of a vulvovaginitis, which often is present from a prior gonorrheal infection, or an endometritis, which is the most common form in which the infection manifests itself.

This may be confined to the placental site or the entire endometrium may be involved. If a sufficient defense is set up by the leucocytes in the uterine tissues we may have no further manifestation beyond the initial chill and fever, with or without a putrid odor, according to the micro-organisms present, or this process may extend and be followed by a metritis, metrolymphangitis, metrophlebitis, parametritis, peritonitis (local or general) pyemia, salpingitis, oophoritis, pelvic thrombosis or a phlegmasia alba dolens, each with its train of symptoms added to those of the original. Endometritis or any one or more of these may follow an infection of a lesion of the genital tract without first producing any local manifestation at the point of entry. The streptococcic and staphylococcic infections have very little or no odor to the lochia except when the infection is admixed with some of the putrefactive organisms. I recall a case of rapidly fatal general peritonitis with septic thrombophlebitis, the only one of its kind I have ever had in my practice. The patient, a multipara living in very insanitary surroundings, unwilling to go to a hospital, was seen by me a few days prior to her confinement. When first seen in labor the infant's head was on the perineum under pressure of expulsive labor pains. It was soon delivered normally followed by the placenta in a short time, no lacerations of the genital tract anywhere. No examinations were called for nor made. Nothing about the house was used except boiled water with lysol, absorbent cotton and gauze in original packages as they came from the drug store. The patient had a chill, a rise of temperature and pulse on the third day, followed by symptoms of a general infection. The lochia ceased entirely; abdomen was immensely distended; no mammary secretion; lower limbs very edematous, discolored and covered with large blebs filled with bloody serum. She manifested no pain whatever except on palpation of abdomen. The pulse was small, thready, weak and compressible. Mind was clear to the end; no sleep whatever. She died on the sixth or seventh day. The infection usually travels along the lymphatics when it goes beyond the uterus into the cellular tissues and beyond to the peritoneum, to become localized or generalized, as the case may be. When the thrombi at the placental site become infected a phlebitis is set up in the uterine wall or beyond in the pelvic veins. This may become so extensive as to involve the inferior vena cava as far up as the renal veins, blocking the veins of the lower extremities, causing phlegmasia alba dolens. When the infected thrombi break down the particles of infected material circulate with the blood current and cause metastatic septic processes or pyemia.

Infections of the mammary gland head the list of the infections in connection with the puerperium not gaining their entrance into the system through the female genital tract. It occurs in about 4 per cent. of all cases. According to Winckel, 67.5 per cent. of cases occur in primipara, due, as I believe, to too frequent and prolonged efforts at nursing before the mammary secretion has begun on the third or fourth day. In primipara the integument about the nipples has not as yet become thickened and toughened by former nursing. More attention to this would prevent many cases of fissured nipples and subsequent suffering and infection. When it occurs in more than 1 per cent. of cases it may justly be charged to carelessness

on the part of attendants. Infection through fissures of the nipples is usually of a phlegmonous nature. It starts with light chills, a rise of temperature and pulse and local pain. This may all subside in one or two days with proper care, but if it extends over more than two or three days it almost invariably results in suppuration. When the infection travels along the lactiferous ducts the process is of a glandular character. Only one lobe may be involved when an early incision may terminate the infection, but if neglected the entire breast may become involved or a post-mammary abscess may be formed with destruction of a large portion of the gland. All cases of mammary infection should be put at perfect rest at once by a proper bandage and as soon as fluctuation can be recognized the abscess should be incised under general anesthesia. The incisions should radiate from the nipple and should be outside of the alveola to avoid the lactiferous ducts and avoid a scar near the nipple which often draws the nipple in at that point.

Infection from the intestinal tract is frequent enough during the puerperium to be of importance. It often causes a high temperature from autointoxication which subsides when the bowels are well cleared. It appears that in some patients the bowels have not been cleared for days or weeks before confinement, although they give a history of a daily bowel movement. One patient had a chill and rise of temperature at the end of the second day which subsided after a full dose of castor-oil and an evacuation containing a small teacupful of blackberry seeds, the last of which she had eaten three weeks before. Another patient who had severe chills followed by a temperature of 104 and high pulse proved negative in every respect except pain over the lower left abdomen on deep pressure. In a few days all subsided and she passed a quantity of exudate much like wet brown paper. This probably was due to a sigmoiditis that had lit up during confinement. We may observe symptoms of a cystitis, pyelitis or pyelonephritis. We had a patient in this hospital who had light chills followed by a rise of temperature to 103.8 on two successive days in whom everything proved negative until we found the urine contained many casts and a large amount of albumin and pus cells. All this cleared up before she left the hospital. This may have existed before confinement and became aggravated during labor. Edgar states that of a large series of cases with a rise of temperature to 100.5 or over in the puerperium 79.5 per cent. were due to other causes than septic infection. In 13.5 per cent. it was due to septic infection; in 6.9 per cent. it was due to unassignable causes. Williams states that there are some isolated cases of fatal infection reported of which the organisms have not yet been identified or classified. The treatment of puerperal infection resolves itself into a rigid system of prophylaxis before, during and after confinement, so long as the lying-in period may last. The two principles of prevention are: 1. Prevent as far as possible any lesion of the genital tract. 2. Prevent the infection of any lesion that is unavoidable, bearing in mind the ever present placental site. The requirements for sterilization are: 1. Sterilize the field of operation, that is, the patient. 2. Sterilize all that comes in contact with this field, that is, the doctor's hands, nurse's hands, and all that may be brought in contact. 3. Remove all unnecessary from the lying-in room; sterilize the room and all that is needed within it.

The most practical way in which this can be accomplished (and I believe the time will come in all large cities) is to have well regulated modern lying-in hospitals where all maternity cases must go and where they will go as readily as they now go for an operation for appendicitis. When we consider that the statistics from some of the leading civilized countries of the world have within recent years reported the highest mortality from puerperal infection among women between the ages of 20 and 40 years of age, barring but one disease, tuberculosis; that the mortality rate is about 7 per cent. between these ages from this preventable disease; that the mortality rate outside of the well regulated hospitals has improved but little since the preantiseptic days and the morbidity is no better; it must make us realize there is yet something to be done in the way of prophylaxis in the obstetric art. We now know that by rigid asepsis and antisepsis the mortality can be reduced to less than 1 per cent. Again, when we see the utter indifference shown by some who attend obstetric cases with regard

to modern asepsis and even ordinary cleanliness in the management of a case, it is remarkable that their cases escape infection at all. But here again comes in that wonderful power of vital resistance in the patient upon which so many depend without any license thereto. Yet this vital resistance must be a great factor and always has been to ward off infection in all surgical cases of whatever kind. I believe that with modern research work preoccupying the minds of original workers and the profession as a means of prevention of puerperal fever, this phase of the problem has in a measure been overlooked. We all know that a certain type of people resist infection better than others. It is this type of women that society should aim to produce for the future motherhood of the world. The most essential function of a nation is to perpetuate itself. This cannot be done during one puerperium or even a number of them, but it takes a guarded life time of the individual along proper lines of living. In some families it will take generations to obtain the desired results. The laity has yet much to learn of the requirements for good obstetrics. But the doctors and nurses need it first. If they have been well enough educated they should not be negligent and careless or fail in their duty to their patient. No doctor or nurse who dislikes confinement cases has any place in that branch of medicine. One who assumes the care and responsibility of an obstetric case must be willing to sacrifice personal comfort and convenience oftentimes in order to give the patient the best that the obstetrics art can afford. Our vigilance should not cease at the end of the third stage of labor or even before, as is sometimes done, but it should continue throughout the entire puerperium. During this time nothing whatever that is unsterile should come in contact with the nipples, breast, genitals or any dressings thereon. No good surgeon would ever think of disregarding this rule. In fact, no one can practice clean obstetrics unless he carries in mind good modern surgical principles to guide him all the time.

CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY.

A regular meeting was held May 11, 1909, at Michael Reese Hospital, with the president, Henry Gradle, in the chair.

I. RADIOGRAMS OF THE MASTOID REGION AND THE INTERPRETATION OF THE SAME.¹

II. INTERPRETATION OF THE RADIOGRAMS OF THE NOSE AND ITS ACCESSORY SINUSES.

Dr. Joseph C. Beck:—Last year I presented to this society a number of radiograms of the nasal accessory sinuses of normal and pathologic subjects, giving the technic of taking such radiograms. At that time I gave notice of experimenting with taking pictures of the mastoid, which I take pleasure in presenting to-night. The secretary requested that we give the technic and interpret the plates.

My conclusions are based on three years' experience and 463 heads of patients in my private practice, on such conditions of the nose, its accessory sinuses, the ears, mastoid process and lateral sinus that by the aid of the radiogram could clear up the diagnosis. We have in these transilluminating boxes about fifteen *x-ray* plates of sinuses taken in the antero-posterior and lateral positions, and as many of the mastoid region, which we will demonstrate to you after I have thrown a few characteristic reproductions of these plates on the screen, interpreting various lines and formations. These lantern slides are far inferior in demonstrating the value of the *x-ray* plate, besides it requires considerable time and experience to enable one to discern the finer points. Only after comparing one plate with another can one form definite conclusions. The same difficulty in demonstration is experienced in the reproduction of *x-ray* plates for publication, as they usually lose so much in details that one who is unaccustomed to looking at such pictures can make very little out of them. It is necessary to use heavy glazed paper and extreme care in the production of the cuts.

1. An atlas of radiograms of the nasal accessory sinuses and mastoid region, especially stereoscopic views with complete description of the technic employed, is in preparation for publication.

PLATE 1.—Skull taken in antero-posterior position shows the following: 1. Nasal cavity divided by the septum, middle and inferior turbinated bodies. 2. Orbits with a horizontal curvilinear line through their upper one-third and the line representing the horizontal plate of the frontal bone. The importance of this line in this position was first brought out by Killian and Goodman, later by Coakley and Caldwell, and means that when we find it thus situated the picture was taken at the right angle, and the reproduction of the structures are of natural size and form. 3. Frontal sinuses. These are distinctly outlined as are also their septa. No matter how pathologically changed a sinus is, one can usually make out these lines or boundaries of the sinuses. 4. Ethmoid cells. A sharp curved line in front represents the posterior border of the lachrymal bone, and behind them into the inner surface of the orbit can be seen the ethmoid cells frequently subdivided by partitions. In many instances, as in the skull, two or more most anterior ethmoid cells reach down over the upper inner corner of the antrum of Highmore. If the head is tilted slightly, either in a faulty position or as one does in a stereoscopic picture, one obtains a very large reproduction of one side of the ethmoid cells. 5. Antrum of Highmore. These cavities are reproduced the poorest, because they are quite a distance from the plate and so many lines are seen running across it that the image is blurred. One can see that these cavities are triangular in shape with the base upward as far as the intra-orbital margin and in most of the cases the apex pointing downwards lower than the floor of the nose. The three borders, namely, the superior, internal, and external, can be distinctly outlined. The external border has a good portion of the cavity shadowed by the malar bone. Another shadow is from the lower margin of the occipital bone, and a third from the external plates of the pterygoid processes of the sphenoid, when these are large as they are in this skull.

PLATE 2.—Skull taken in lateral position for sinuses. 1. In the first place, it shows the frontal sinuses superimposed showing the height and depth with the floor of the sinuses. It clearly demonstrates the space one has in entering the frontal sinus by way of the nasal cavity. This width varies so much that one cannot, without the aid of lateral picture, determine it for operation, unless it be by a stereoscopic antero-posterior exposure, and I will speak of this procedure later. 2. The anterior ethmoidal cells are seen more extensively and one can make out where the posterior ethmoidal cells usually begin. The one difficulty again is in the fact of the superimposition of the two sides, and therefore it is not of much clinical value. 3. The sphenoidal sinuses are, in most of the cases, easy of demonstration. One will first locate the sella turcica with the anterior and posterior clinoid processes, and right below it are the sphenoidal sinuses. This varies a great deal in its size and form. 4. The antra cannot be outlined in lateral view except in front one can see the lower anterior margin where the pyriform fossa is formed. 5. The nasal bones are seen as short projections as in most plates the soft structures do not show, and to one not accustomed to examining these plates the conditions will look abnormal. 6. The region of the temporal bone in this position is of no practical value in examining the mastoid, etc. We have to take the picture in the inclined lateral position.

PLATES 3, 4, 5, 6, 7.—Normal heads; antero-posterior positions, showing different shapes and sizes of the sinuses.

PLATES 8, 9, 10.—Lateral position, showing different sizes and shapes of the frontal sinuses and size of the naso frontal ducts.

PLATES 11, 12.—Antero-posterior position of child and adult heads, showing the absence of frontal sinuses.

PLATES 13, 14.—Lateral position of the same child and adult heads, showing the absence of frontal sinuses. The adult had pus from the left nostril and severe frontal pain, repeatedly operated on intranasally, but did not get well. Four years ago I attempted an external frontal sinus operation, found no frontal sinus; closed and subsequently took the x-ray picture, which I should have done before operating, and found the absence of both frontal sinuses.

PLATES 15, 16.—Acute frontal ethmoidal and antral infection on one side only. Clearly showing the shadow of these cavities.

PLATES 17, 18.—Same cases one month later after simple local treatment had been employed, recovered and showing much clearer spaces, but are not completely cleared up, although there are no symptoms.

PLATE 19.—Acute antrum infection of dental origin; dull antrum.

PLATE 20.—Same case after dental treatment, removal of tooth caries; cleared up.

PLATE 21.—Chronic left frontal, ethmoidal and antral sinusitis. Marked dullness on that side.

PLATE 22.—Same patient one year later; middle turbinectomy and ethmoid curettement, frontal, antral and ethmoidal regions are much clearer, but not completely cleared up, although the patient has no objective nor subjective symptoms.

PLATES 23, 24.—Luetic necrosis with marked external nasal deformity as a saddle nose and the tip is markedly drawn inwards. One observes the absence of the bony structures forming the pyriform fossæ, the entire septum, turbinates and nasal bones. The frontal and ethmoidal sinuses are absent or completely obliterated, the antra are cloudy. The mastoid, although taken in the wrong angle, shows absence of any cells as also show the tips in the antero-posterior exposure.

PLATE 25.—Chronic double frontal, unilateral ethmoidal and antral infection. An artificial plate shows very distinctly. It is made of vulcanized rubber.

PLATE 26.—Shows a normal case, pins holding artificial teeth to a plate made of dental wax, which does not show in an x-ray plate.

PLATE 27.—Chronic pansinusitis, especially of the frontal sinuses.

PLATE 28.—Same case after performing an external plastic frontal sinus operation by my method, as described in the *Journal of the American Medical Association*. It shows the broken septum of the frontal sinus, but the persistence of the general cavity. Patient after one year has no symptoms of his former trouble.

PLATE 29.—Double chronic frontal sinusitis operated on by external method, removing the entire bony covering of the frontal sinuses and making a large opening into the nose without going through the nasal process of the superior-maxilla or taking off the floor of the frontal sinus. After thorough removal of the diseased structure the cavity was filled with bismuth paste No. 3, consisting of bismuth, vaselin, wax and paraffin, and the flap brought over and sutured. The case recovered very rapidly and it is now eight months since the operation and the case has remained well. The radiogram shows the condition seven weeks after operation, a small portion of the paste still remaining. A radiogram taken later shows all the bismuth paste absorbed.

PLATE 30.—Skull taken in the incline lateral position for demonstration of the middle ear, mastoid process and sinus (lateral). One will observe the complete outline of the middle ear and mastoid cells. Since the soft structures, as well as ossicles, are absent in the skull, one can see the solid portion of the cochlea, two distinct half circles. The mastoid cells are seen distinctly separated from one another by their partition. The one large cell close to the canal is the antrum, the largest cell aside from the one mentioned appearing at the apex or tip of the mastoid. The limits of the mastoid region can be made out clearly; cells reaching far over into the zygomatic root, high up into the squamous portion and far back over the occipital region can often be made out. I would like to mention at this point the very recent work of Hakase Dr. H. E. Kanasugi, who has made a study of four thousand cadaver heads to determine certain anatomic facts in relation to the mastoid process. He has made a number of radiograms of these heads to determine these facts: 1. We have two distinct varieties of mastoid process; diploic (small mastoids) in which scarcely a cell can be found; pneumatic (large mastoid) in which are large and numerous cells. 2. The location of the lateral

sinus in relation to the posterior wall of the auditory canal. In the large pneumatic mastoid the sinus was located quite a distance from the posterior canal wall, whereas in the diploic it is very close to it.

This is a fact of considerable importance. Of course, we have known this clinically for a long time, but not all small mastoids are diploic or all large ones pneumatic. Therefore the use of the *x-ray* is of great value. The lateral sinus is seen in the skull very clearly curving from the mastoid process (posterior border) backward and upward towards the torcular-herophili. The knee portion or bulbar region is not outlined owing to its dense bony structure overlying it. I have one case where I have made a diagnosis of thrombosis of the lateral sinus before I took a radiogram, operated on and found the diagnosis correct. I did not wait for the development of the plate, so next day examined and found the outline of the thrombosed sinus clearly outlined. I wish to simply place this on record, knowing that one case is no criterion to go by.

As to the middle ear, that can be made out especially when the hammer is present, since that little bone is seen in the middle of clear oval space. Very low down on the plate is seen the other mastoid tip.

PLATE 31.—Normal mastoid, pneumatic variety. One will see both mastoids on one plate, the upper one is the one next to the plate and is shown completely in proper relation to the other structures and landmarks. The lower or opposite mastoid shows only tip, and even that is shadowed by the other dense structures. The mastoid proper shows the middle ear clear and a streak running through its anterior half, which is the hammer. In front of the middle ear is the glenoid fossa and the condyloid process of the lower jaw. The mastoid process, with its cells, can be clearly outlined. These cells vary a great deal in size and distinct partitions are made out; one large cell is also seen close to the external canal, most probably the antrum. Some of the cells are seen running over into the root of the zygoma. The curvilinear shadow of a groove represents the lateral sinus. It can only be made out outside of the mastoid process. The various sutures, the middle and posterior fossa are clearly shown. I have not been able to see any of the deeper structures of the internal ear, such as the vestibular apparatus or the cochlea. These normal heads vary considerably in mastoid cells and in the size of the entire process, but one side usually corresponds to the opposite side; that is to say, when we have diploic mastoid process on one side it is also of that type on the opposite side.

PLATE 32.—Normal mastoid diploic variety. This shows a small mastoid process with practically no mastoid cells; except the one cell, the antrum. This is seen to be higher up than it is in the pneumatic variety. One will also notice a peculiar formation of the lower jaw, the ramus appearing almost as a straight line of comparison to the angular appearance in the pneumatic type. In fact, the whole configuration of the face and head appear small, especially is this noticeable in the malar bones. There is a faint outline of the lateral sinus, which comes up very close to the posterior wall of the auditory canal, but only operation or post-mortem examination could prove this point. Neither one of these opportunities have I as yet had to demonstrate this previously by radiogram.

PLATE 33.—These two radiograms show an acute mastoiditis in comparison to its opposite normal mastoid. One observes the middle ear dull and obstructed and the mastoid cells obliterated, although the partitions are still to be made out very faintly. The tympanic membrane was freely incised and drained. Mastoid symptoms subsided and ear became dry after three weeks.

PLATE 34.—This plate shows the same mastoid recovered practically to the normal one.

PLATE 35.—(Four radiograms placed on one plate, as described.) This series of mastoid radiograms show a case of an acute suppurative otitis media supiora of a grippal type, although the culture of the incised tympanic membrane showed a pure culture of *Staphylococcus aureus*, going on to an acute mastoiditis. After seven weeks of local treatment, reincision of the tympanic membrane and autovaccine therapy, the mastoid had to be operated on. At the

operation the anatomic and pathologic conditions were precisely what the radiogram showed beforehand, that is, complete destruction of the interior of the mastoid process. You will observe that the septa between the cells had all melted away, so to speak. There were, however, no external manifestations of this destructive trouble, a fact well known in our surgical experience. The first radiogram shows a normal mastoid; the second an acute violent process after three days, the septa of the cells still seen clearly; third, four weeks later, septa less distinct, more opacity to the mastoid region; fourth and last, just before operation, showing the above mentioned characteristics.

PLATE 36.—Shows this mastoid three weeks after operation, discharge from the auditory canal having ceased on the second day after operation, and the external wound healed on the twentieth day. All one can make out at this time is a clear middle ear with a complete obliteration of the mastoid cavity.

PLATE 37.—These two radiograms are of precisely the same kind of a case, and I show them because the patient had symptoms of cerebellar abscess. The radiogram, however, shows nothing pathologic in the posterior fossa. After operation all the symptoms, such as vomiting, nystagmus, staggering gait, slow pulse and sub-normal temperature, disappeared and the ear was dry after three days. In two weeks the hearing was practically normal.

PLATE 38.—Shows the case two weeks after operation.

PLATE 39.—Simple acute mastoid operative case, which was filled with bismuth paste No. 2, which consists of bismuth subnitrate 30, vaselin 60, paraffin 5, and white wax 5 per cent. This paste was injected right after operation and wound closed primarily with uneventful recovery. The ear was dry eleven days after operation. The skin had two stitch points of suppuration, which, however, healed very easily and the patient was discharged on the seventeenth day. At the time the radiogram was taken one can still see some of the bismuth paste in the wound. I have similar cases which show its presence as late as two months after injection.

PLATE 40.—Ear radically operated on two years previous to the taking of radiogram. One can see simply the outline of the exenterated cavity of the remaining or reformed bone. Shows no cells remaining anywhere.

PLATE 41.—Chronic suppuration of the middle ear, treated by me for the past two years. Never had any pain nor clinical evidence of necrosis. The patient refuses operation. The mastoid shows no mastoid cells, which is a sclerosis. This one spot looks bad and I take that as a possible point of necrosis, but cannot say this with certainty unless I operate on the case.

PLATE 42.—Chronic otitis media catarrhalis (markedly progressed type). This shows an extremely clear middle ear and mastoid cells. One will explain this from the fact that the sclerotic process has been so marked as to cause complete atrophy of the mucosa of the middle ear and modified mucous membrane of the cells. I have observed in the few cases of ossiculectomy which I have performed on these cases, a very dry whitish appearing middle ear. Also post-mortem examination of the middle ear and mastoid process of cases that died from some intercurrent diseases, which I had observed and diagnosed for some time previous as chronic adhesive middle ear conditions, showed this atrophic appearance of the lining membrane.

I will conclude my remarks by saying that practically every case that I have had rayed showed something of special interest, and so could go on for some time illustrating plates to you, but since most of the essential conditions and points have been brought before you, will be pleased to hear what other gentlemen have to say on the subject, and if I have failed to make myself clear I will be glad to answer any questions which may be asked. So far as the stereoscopic radiograms of the head are concerned, I wish to say that this is the subject with which we are now experimenting and hope to be able to bring our results before you next year, whatever they may be. Suffice it to say at this time that the results obtained thus far have not been satisfactory enough to employ the method for practical purposes. There are several points of interest in our experimental line

of radiography which I would like to mention, and I will be pleased to give information regarding same to any one interested in this work, namely: 1. Injections of the tonsils and radiographs of them. 2. Injection of the tonsil crypts and radiographs of them. 3. Injections of the vascular supply of the organs of special sense, as eyes, ears, nose and tongue, and radiographs of them. 4. Filling out the cavities of the antra, frontal and sphenoids with the bismuth and shown in radiograms. 5. Comparative anatomy of skulls of the monkey, ape, lion, tiger, dog, cat, rabbit, rat, mouse and other lower animals, with special reference to the study of the accessory sinuses and mastoid process.

TECHNIQUE.

Dr. Francis Turley (Radiographer of the North Chicago Hospital):—It is my privilege to illustrate the three methods used in taking radiographs of the head for the purpose of showing the nasal cavities and their communicating sinuses, the middle ear and mastoid cells.

An x-ray tube of medium vacuum is best. The timing refers to the Cramer plate, which is slower than the Lumière. The coil used is a 16 inch, energised by a 110 volt current, with about 20 amperes in the primary. For the purpose of showing the nasal cavities and communicating sinuses to advantage, excepting the sphenoid, the postero-anterior position is best. A head-rest, inclined at an angle of 25 degrees with the table is used. The plate, 8 by 10 inches in size, is held on this incline by a thin moulding three and a half inches from the table.

The patient is placed on the abdomen, the face resting with the forehead and nose upon the plate, the line of the hair at top and the chin above the bottom, the middle line of the face corresponding with the middle line of the plate from above downward. This radiograph will give a clear view of the nasal cavities, the frontal sinuses, the ethmoid cells, the antrums, the orbits, the mastoid tips in most cases and the contour of the lower jaw. An exposure averaging thirty seconds is needed.

The lateral positions are two, the level position, taken with the patient upon the side, the plane bisecting the head from before backward, being parallel to the plate. To get this position a box-like head-rest must be used, having an elevation of about five inches. Exposure averaging fifteen seconds. This radiograph will show the depth of the frontal sinuses, the sphenoidal sinuses and the sella turcica.

The second lateral position is the inclined position taken for the purpose of showing the middle ear and mastoid cells. The same head-rest is used as for the postero-anterior position. The patient lies flat on the abdomen, the mastoid region being as near the center of the plate as possible, the bisecting plane of the head being parallel with the plane of the head-rest, as before.

In the first lateral position the object is to superimpose the two sides, one above the other, as perfectly as possible. Thus one mastoid obscures the other. In the inclined lateral position the mastoid process on the plate is much higher than the other, the smoother portion of the skull above the base being directly above the mastoid and ear. This radiograph shows the middle ear, the mastoid process and cells, the genoid fossa and a part of the foramen magnum.

For the purpose of taking stereoscopic radiographs we have head-rests like the ones described, capable of containing an 8 by 10 plate, in either its long or short diameter. The head of the patient is separated from the plate by a sheet of aluminum 1/16 inch in thickness.

The adjustment of tube, plate and patient is made as usual. The tube is moved 1¼ inches to the right and an exposure made. This plate is removed and another put in its place. The tube is then moved 2½ inches from this position to the left and a second exposure made. Thus two radiographs are produced with the patient in exactly the same position relative to the plate, and these two pictures will stereoscope perfectly with a pair of glasses made for this purpose.

A few general remarks will not be amiss in concluding this subject. The same developer is used by us for these plates as for all others, namely, ostol and hydroquinon. They develop relatively slowly. Wet plates should not be looked at unless necessary, as they are easily scratched and the heat from the shadow-box softens the film.

There are a few contraindications to the abdominal position which will occur to you, as abdominal tumors of large size, great ascites, advanced pregnancy, appendicitis with abscess formation and typhoid fever in its later stages.

The lying position has several advantages, especially the abdominal over the sitting. The body is absolutely at rest and with the head turned to one side and the body upon the abdomen the head is not readily movable. Children especially, when they can be managed at all, lie at perfect ease in this manner.

Care must be taken to have the bisecting antero-posterior plane of the head parallel with the plane of the head-rest, as described above, or the purpose for which the exposures are made will be defeated, a distorted image being produced.

VARIATION OF TECHNIC OF RADIOGRAPHY TO PRODUCE A LIMITED REGIONAL PICTURE.

Dr. P. S. O'Donnell exhibited radiographs taken of a child, three years old, who had swallowed a scarf-pin. The first radiograph showed the pin away down in the abdomen on the right side. The second radiograph, taken three hours later, showed the pin on the opposite side, and the third radiograph, taken three hours later, showed the pin still traveling. At 8:30 o'clock the next morning the pin was again on the right side and at 10:30 a. m. it was descending into the rectum. Fifteen minutes later it was extracted by means of forceps. Dr. O'Donnell also described briefly his method of making radiographs by means of two or three tubes, so as to lessen the density of the object to be penetrated by the rays. Better results are obtained in this way than by the usual method. Each tube is excited by an individual apparatus. The picture-taking tube is placed directly in front or above the part to be examined, and the auxiliary tube is placed on the side, so as to illumine that part in a lateral direction.

Dr. Ira Frank showed radiograms of acute antrum disease, necrosis of the lower jaw, alveolar abscess and double ethmoiditis. In one of the plates there appeared a screw which had been introduced into the infraorbital foramen following removal of the nerve for neuralgia.

RADIOGRAPHY OF THE ACCESSORY NASAL SINUSES.

Dr. E. Fletcher Ingals presented a number of radiographic negatives showing a probe in the naso-frontal duct and others showing a self-retaining drainage tube in the enlarged drainage canal after his operation for intranasal drainage of the frontal sinus. He said, in part, that where the naso-frontal duct is fairly large we may often satisfy ourselves, by introducing a probe, whether or not there is likely to be any danger from enlarging the naso-frontal duct to a canal 6 mm. in diameter; that when any doubt exists in the mind of the operator as to whether or not his probe actually enters the frontal sinus, or as to the relations of the naso-frontal duct to the fossa ethmoidalis, or to the posterior wall (tabula interna) of the frontal sinus, good frontal and lateral radiographs should be taken with the probe in the duct. In making the frontal exposure the *x*-rays should pass in the plane from the occipital protuberance to the supraorbital ridges while the patient rests with his face on the plate. In taking the lateral view the rays must pass at right angles (perpendicular) to the plate on a plane through both frontal sinuses, the patient lying with the affected side on the plate. To secure this direction of the *x*-rays a right angle of some kind, for example a squarely cut magazine, is placed with its edge on the plate and the end against the patient's forehead so that both frontal sinuses are brought into the same plane. He presented also one lateral and one frontal negative showing the drainage tube in position on one side and the probe in the naso-frontal duct of the opposite side, just prior to the second operation on a patient with frontal sinusitis of both sides. He stated that he considered the radiograph, like transillumination, to be an important aid in diagnosis; that the two are of equal value, but that he questioned whether either will surely reveal the absence of a frontal sinus; therefore, one should not operate for frontal sinusitis without having established the diagnosis by other methods.

Dr. Norval H. Pierce showed radiographs of a case of aneurysm of the aorta treated for eighteen months for cough and loss of voice. The man, aged 70 years, had paralysis of the left vocal cord. Laryngeal tugging was well marked, as

were the other symptoms of aneurysm. He also showed a radiograph of a case of frontal sinus empyema.

Dr. W. P. McGibbon exhibited radiographs of a case of bilateral suppurative ethmoid disease.

Dr. George E. Shambaugh exhibited several radiographs of a case in which the diagnosis of the condition in the frontal sinus was complicated on account of the invasion of this sinus by a large ethmoid cell. In attempting to introduce a probe into the frontal sinus, the ethmoid cell was more readily entered than the sinus itself. The ethmoid cell was not the seat of an empyema, but the frontal sinus was. The radiograph showed the outlines of the ethmoid cell inside of the frontal sinus, and the canula was clearly shown in one radiograph lodged in the ethmoid cell; in the other it was free in the frontal sinus.

Dr. J. Holinger showed two radiographs of a case of diffuse mastoiditis in which the symptoms complained of were headache, fever and a purulent discharge from the nostrils, with pain in various parts of the head and neck.

Dr. F. Gurney Stubbs showed an interesting radiograph in a case where the following symptoms had been noted: Two years ago the patient, in apparently perfect health, began gradually to lose the sight first in the right half and then in the left half of the right eye. Two months ago he began to notice that the vision was becoming impaired in the left half of the left eye. The *x*-ray plates that were taken showed a distinct shadow in the region of the sphenoid sinus and sella turcica. The question arises whether this shadow is caused by a tumor in the sella turcica or by suppuration in the sphenoid sinus. Dr. Stubbs examined the patient intranasally in order to determine this question. He found no evidence of intranasal suppuration. A canula was introduced into both sphenoid sinuses but no secretion was discovered either by inflation with air or syringing with water. The case is one that illustrates the necessity oftentimes of calling for the assistance of a rhinologist in order to help in forming a clear judgment in regard to the interpretation of the radiograph.

DISCUSSION.

Dr. J. Holinger doubted the accuracy of the statement that the mastoids in the same individual are in all respects alike. It is possible for one mastoid process to be pneumatic while the other is also composed of a number of large cells. On the other hand, it may be possible for one process to be small and composed of compact bone, while the other one is of the same type but may differ in important surgical details. You can scarcely pick up a skull where the grooves of the sinuses, for example, are equally deep on both sides. In several cases in which he operated he found the mastoids not alike, and in one case in which a double mastoid operation was done, the first blow on the chisel drove the instrument into the sinus and a severe hemorrhage followed, while on the opposite, previously operated on, the sinus was more than 1 cm. from the surface. Therefore, he believed that it was dangerous to teach that the mastoids in the same individual are like.

Dr. George E. Shambaugh, in discussion, called attention to the fact that as time goes on we learn to make better and better plates, that we are more often able to certify the results of an intranasal examination of the conditions in the accessory sinuses by the findings in the radiographs. At the same time it must be evident to every one who is doing careful work in rhinology that the value of the *x*-ray in the diagnosis of the conditions in the sinuses, falls far short of the accurate knowledge to be acquired from a careful, thorough-going intranasal examination. As a means of verifying an intranasal examination, the *x*-ray is very valuable, but those who have mastered the technic of intranasal examination of the accessory sinuses can usually dispense with the *x*-ray in forming an accurate diagnosis. The principal value of the radiograph is to show the size, shape, etc., of the sinuses, especially the frontal sinus. But even this knowledge is of lessened importance, as we are learning more and more how to select the cases of frontal sinus disease that call for extranasal operation. When a case of frontal sinus disease calls for an extreme operation, the situation is one that cannot be

much influenced by the size or shape of the sinus itself. Still, the surgeon will feel more confident before operating upon one of these cases, if he knows beforehand what the sinus is like anatomically.

Dr. Joseph C. Beck stated that an examination of four thousand skulls by a man of authority showed that there is a great deal of uniformity in the mastoids of any one skull, and that Dr. Hollinger's case may have been the exception. A careful examination of radiographs, however, discloses quite a similarity in the size and shape of the mastoid cells. Dr. Shambaugh, he said, contradicted himself by stating that the radiograph is not of much value, because in the plates he showed it was very evident that he would have failed to account for the condition present without the aid of the *x*-ray. As for intranasal operations, it is useless, he said, to attempt to cure a chronic frontal sinusitis through the nose when the sinuses extend far over to the sides, or when many septa are present. It has been the practice of most radiologists to ignore entirely the technic of taking radiographs, so that they are not always of as much value as they might be. If taken in the right direction and at the right angle, radiographs are exceedingly useful.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

*Regular Meeting, March 8, 1909.**

A regular meeting was held March 8, 1909, with the president, Dr. Frank Allport, in the chair.

SYMPOSIUM ON SYPHILIS.

EXTRAOCULAR SYPHILIS.

Dr. Casey Wood read a paper on "Syphilis of the External Eye." He drew attention to luetic affections of the lachrymal gland, which he regards as rare.

Chanere of the lid is readily confused with suppurating chalazion and even with an acute purulent dacryocystitis. Gumma of the eyelid is another rare disease. Lues of the conjunctiva includes mucous patches, gumma, chanere and other syphilides.

Although the older ophthalmologists believed the sclera to be immune from attacks of syphilis we know this contention to be unfounded, although sclerotic alterations due to lues are rare and prone to be regarded as non-specific or as tubercular.

Tarsitis syphilitica is rather uncommon, although the diagnosis, by modern means, is easily possible.

The lachrymal apparatus often suffers—especially in conjunction with nasal duct obstruction, the result of periosteal and bony disease—the luetic origin of which is always to be suspected.

By far the most common luetic disease of the external eye, mostly due to congenital infection, is interstitial or parenchymatous keratitis. Probably 75 per cent. of the cases are due to hereditary syphilis. Dr. Wood entered fully into a consideration of its treatment and believes that hygienic measures—out-door life, tonics, etc., are of more importance in the general conduct of the case than specific remedies.

THE DIAGNOSIS OF SYPHILITIC EYE LESIONS BY MEANS OF THE SPIROCHETE PALLIDA AND THE SERUM REACTION OF WASSERMANN.

Dr. B. C. Corbus read a paper on this subject.

With the discovery of the spirochete came its demonstration with the staining methods, which at first were more or less successful in skilled hands, but the demand for a simpler and more reliable method, led Richert, the instrument maker of Vienna, to reintroduce the dark illuminator. Here we have a method which is extremely simple, the technique of which can be mastered by the average physician.

During the past eighteen months Dr. Harris and Dr. Corbus have examined some two hundred cases. These have been confined to primary lesions on the

* The meeting of April 12, was reported in the November Journal, page 620.

penis, hands and lips and secondary lesions, comprising condylomata, mucous patches, papules and enlarged inguinal glands.

Numerous English and American ophthalmologists lay considerable stress on the fact that the spirochete are found in apparently healthy eyes of fetuses and infants who have died from congenital syphilis. This is not at all surprising when we realize that the fetal circulation is fairly alive with the organisms and that they are easily demonstrated in every organ, particularly in those organs where there is an abundant blood supply, as for example, the chorioid coat of the eye.

From the preceding we would be led to presume that primary and secondary lesions of the eye are extremely rare. This in a measure is true, but it is highly probable that these conditions have been overlooked on account of insufficient means for diagnosis.

With the aid of the dark ground illuminator, we have a rapid, reliable and simple method of differentiating these ulcers and as a farther means of diagnosing syphilitic eye lesions we have the serum test of Wassermann, Neisser and Bruck.

Whether the limitations of this test extend beyond the mere diagnosis and permits us to judge in some degree of the effectiveness of a cure, time alone will tell. The tendency of the modern treatment of syphilis is toward a biologic treatment, that is, to control the treatment with the Wassermann reaction. Of one thing we are positive, that the Wassermann reaction gives us control of the diagnosis after the period of second incubation, no matter what length of time has elapsed, provided the patient is not cured.

Unfortunately the Wassermann reaction is complicated. It requires time, patience and careful work and each series of tests must be controlled by known normal and syphilitic sera. Statistics in regard to the value of this reaction are now available in large numbers and there seems to be no branch of medicine or surgery that is not benefited by this discovery.

Dr. Corbus and Dr. Harris concluded:

1. That spirochaete pallida are present in all syphilitic lesions, including those of the eye.
2. In chancres and mucous patches, the diagnosis should be made by the demonstration of the spirochaete.
3. All other lesions of the eye of syphilitic origin may be diagnosed by means of the Wassermann test.
4. Eye conditions depending upon pathological changes in the nervous system of syphilitic origin may be diagnosed by the Wassermann test.
5. All doubtful cases that might be explained on a syphilitic basis should be given the Wassermann test.

Dr. Corbus and Dr. Harris explained in detail the Wassermann test and demonstrated the living spirochaete before the society.

INTRAOCULAR SYPHILIS.

Dr. William H. Wilder read a paper on the above subject, an abstract of the principal points being as follows:

Syphilis is the cause of from one per cent. to three per cent. of all eye diseases. By far the largest number of all syphilitic lesions of the eyeball are of the intraocular structures.

The iris and ciliary body are more frequently affected by syphilis than any other part of the eye. Syphilitic iritis usually manifests itself as a plastic inflammation. It affects one eye in the majority of cases, but one-fourth of them are bilateral. The appearance of the disease in the second eye may be considerably delayed, sometimes for a year. With the exception of the papular or condylomatous form, separately considered, there are no marked distinguishing features that speak for the specific etiology of the disease and one must rely upon the history and other manifestations of syphilis to determine the exact nature of the process. Iritis, condylomatous or papulosa, is supposed to be characteristic of syphilis. One, sometimes two or more, grayish yellow or reddish brown

nodules appear on the papillary margin of the iris, and at this site there is usually a posterior synechia. About 8 per cent. of cases of syphilitic iritis present this feature.

There has been considerable discussion as to the nature of these nodules, some regarding them as condylomata and others as true gummata. When appearing in the secondary stage, as they usually do, it is probably nearer the truth to call them condylomata. True gumma of the iris may form in the later stage of the disease. It frequently affects the root of the iris, but more frequently pushes forward from the ciliary body. The disease usually appears at the time of the syphilides, about six months after the initial lesion, but it may appear before or be delayed for a year or more. The course is much like that of an ordinary case of iritis, but on the whole the prognosis is rather more grave. Especially true is this of the condylomatous and gummatus forms, for many of these eyes are lost because of the severity of the inflammation. Except when the papular form is present, which is rather characteristic, one cannot be sure of the syphilitic nature of a given case of iritis. The distinct history of hard chancre and the presence of syphilids and other luetic manifestations make the diagnosis reasonably certain. However, in the majority of cases the clinical evidences are not sufficient to enable us to distinguish the syphilitic from other forms of iritis, and this is even more true of eyelitis, chorioiditis, retinitis and optic neuritis.

The spirochete pallida has been found in the aqueous humor by some observers, and this test might be made use of for differentiation. The recent reports on the value of serum diagnosis developed by Wassermann and Plaut from the principle of complement fixation, hold out the hope that a method has been discovered that will be of great value to the ophthalmologist in determining the exact nature of certain obscure lesions of the eye.

Chorioiditis frequently occurs as a complication of iridocyclitis. There is no clinical appearance that is distinctly characteristic of syphilis in any of the lesions of chorioid or retina with possibly the exception of diffuse chorio-retinitis.

Acute irido-chorioiditis manifests itself by an increase of the evidences of inflammation in a case of iritis. The vision is reduced and the tension lowered. Numerous opacities in the vitreous make it impossible to see the fundus. The prognosis is grave, for the retina may become detached and the eyeball may shrink.

TREATMENT OF SYPHILIS.

Dr. W. L. Baum presented this feature of the subject.

Dr. Thomas L. Dagg stated that the diagnosis of syphilis by means of laboratory methods has become popular by reason of its accuracy, although as stated by Dr. Corbus, the technic is beset by many difficulties. The spirochete can be demonstrated in the lesions, thus making the diagnosis absolute, but the staining methods are far from being satisfactory. The Spiegel condenser method is satisfactory when the spirochete is present, but is of no value whatever in a negative way. The Wassermann reaction is valuable when positive results are obtained, but the test is beset with difficulties. The use of the organ extract is liable to be made difficult because of the age of the extract; therefore, Dr. Dagg and his co-workers are now investigating the method of Noguchi, who employs lecithin as an antigen, and he uses human blood as well as the hemolytic inactivated serum prepared from human blood. This simplifies the method not only for the biological laboratory, but also for the general practitioner. The method is still in its infancy, but Noguchi's results are very gratifying and positive findings are fully as frequent as with the original Wassermann test.

Dr. Henry Gradle saw a striking instance of tarsitis, which he followed to recovery, occurring in a female with a definite syphilitic history, although there were no free manifestations at the time. The tarsus was enormously swollen and because of a feeling of fluctuation that was present, an incision was made with the hope of finding fluid. None was found. Anti-syphilitic treatment

was ineffectual until after about three months, when the disease gradually disappeared and after four or five months there was no evidence of it and the tarsus was intact. Whether recovery was due to the treatment could not be determined in this case.

As to the etiology of interstitial keratitis, Dr. Gradle is convinced that it is easy to determine whether syphilis or tuberculosis is the cause of keratitis. If the affection occurs in both eyes, either simultaneously or in close sequence, beginning as a cloudiness at the periphery, and spreading over the entire cornea, with the formation of blood vessels in the deeper strata, it is always a case of syphilis. Tuberculosis is usually monocular, and no new vessels are formed in the inflammatory tissue. Hirschberg, he said, laid stress on the fact that one can always demonstrate new vessels in a keratitis of syphilitic origin. The prognosis is in inverse proportion to vascularization. The cases showing the greatest formation of vessels in the cornea from the start are most likely to prove serious, and to leave the greatest optical disturbance. Dr. Gradle has seen only one instance of absolute recovery of perfect transparency of the cornea. The history was beyond question. Vascularity was marked. The picture was not typical, but it involved both eyes and began as a peripheral cloudiness which spread over the entire cornea, clearing up in four or five months and leaving the cornea absolutely transparent. The history of these cases is exceedingly prolonged. Dr. Gradle has known a few cases to pass practically through the entire period of climax and recovery to the limit with six or seven months. Sometimes vascularization is absent entirely, and these cases usually go on to a speedy recovery. He has known one case of almost complete blindness due to persistent opacity.

Dr. Gradle agreed with Dr. Wood as to the ineffectiveness of antisyphilitic treatment. At one time he felt that he could influence the course of the disease by administering large doses of iodine, but he now inclines to the belief that that was an error of observation, because it could not be confirmed. Stevenson gives a toxin in moderate doses, with continued mercurial medication, but the results are not convincing and many cases of damage to the optic nerve are recorded.

As regards recovery of cases of syphilitic iritis, he has never seen a case that did not recover entirely, except that synechiæ are left. It occasionally affords a very interesting observation, showing that it can be prevented by specific treatment or is influenced markedly by specific treatment, to this effect that it occasionally occurs in patients who have been under moderately active treatment, and still the disease makes its appearance in one eye. If treatment is pushed and the disease occurs in the second eye, it runs a milder course, but he does not believe that it can be prevented entirely by specific treatment. He has noted that syphilitic iritis seems to be more obstinate in those cases where cutaneous manifestation takes the form of the eruption of lichen.

Dr. Charles H. Beard confined his part of the discussion of intraocular syphilis to demonstrations of the appearance of specific chorioiditis and chorioretinitis.

Dr. George F. Suker said that a number of years ago he advocated the use of large doses of potassium iodide, even up to one thousand grains a day, but no one received the suggestion with favor; therefore, he was rather pleased at Dr. Baum's advocacy of large doses. He was also pleased to hear Dr. Wilder's classification of iritis. He has seen but few cases of multiple gummata of the iris; as a rule, they are single, and project from behind forward, crowding the iris and projecting through a rent in the iris. A papule, on the other hand, destroys the iris tissue, as a whole. As to parenchymatous keratitis, he has pursued a line of treatment similar to that outlined by Dr. Wood—hygiene, feeding and toning up the patient's general condition rather than giving anti-specifics. He has had most excellent results, although the opacity does not disappear entirely. There always remains some haziness and the disease is of longer duration. One case lasted seven years, but that was an exception.

With reference to the pigmentation in the iris, if one will observe the iris after the attack of syphilitic iritis which has been practically cured, he will find more absorption of the pigment than occurs in any other form of iritis, and the pigment is much finer than in any other form. This is a very characteristic sign. He agreed with Dr. Wilder that the majority of cases of syphilitic iritis are complicated by more or less involvement of the anterior portion of the chorioid. An examination of the anterior portion of the fundus will disclose evidence of such involvement. Contrary to the usual opinion, Dr. Suker does not believe in giving potassium iodid or mercury early in the attack during the acute stage. It is adding insult to injury, the tissues being already loaded down with discharge, and should not be subjected to any further glandular stimulation.

Dr. O. Tydings agreed with all Dr. Baum said with regard to the treatment by large doses of mercury and iodids, but the question is: Is the lesion a specific one or not? If it is specific, antispecific treatment is indicated, but it must be remembered that some of these cases will get well after years of treatment. He recently dismissed a case of interstitial keratitis in a young man, twenty-four years of age, who had been under treatment for seven years. The Wassermann test and finding the spirochete are great aids in diagnosis.

As to the matter of inheritance, the question arises whether it comes from the male or from the female. The female may pass through life without any external evidence of specific disease, and yet the offspring is syphilitic. If the disease is propagated by the male, how is it propagated? Is the spermatozoon capable of carrying the spirochete?

Dr. F. G. Harris said that the probabilities are that the mother is infected with syphilis and herself infects the ovule, which has been shown to contain the spirochete. Even such a woman presents no external evidence of syphilis, the Wassermann test is positive, and her offspring is syphilitic. Why the mother is free from symptoms and signs has not been explained. A typhoid may recover from the disease and carry organisms around in the body for the remainder of his life without showing any pathologic change. The same thing may be true of the mother infected with syphilis.

As to potassium iodid, it has been shown that the potassium iodid treatment in syphilis is purely symptomatic and that the more modern treatment is etiologic. The iritis is due to the spirochete. It has been found in the lesions of the eye, heart, cerebrum and elsewhere, showing that it is the etiologic cause of syphilis. It is true that the iodid will remove the products of inflammation, but it does not cure the syphilis; therefore, a recurring iritis means that the disease is still active. Mercury and arsenic are the only drugs that annihilate the spirochete; therefore, mercury is indicated whenever a diagnosis of syphilis is made, no matter in what stage. Mercury cures the disease.

Dr. L. Wallace Dean said that for three years he has not been giving any systematic treatment for the hereditary forms of interstitial keratitis, but in the acquired syphilis he has not been able to get any results except by pushing systematic treatment.

Dr. Julius Grinker said that it was found many years ago that in the tertiary lesions of the brain, iodids very often failed unless vigorous mercurial treatment was instituted. That knowledge was empirical, but now we know that such treatment really was good scientific practice, using mercury for the advanced lesions and the early ones, and later on using the iodids. In the secondary stage of syphilis mercury is indicated, but the tertiary lesions must be treated by iodids.

Dr. B. C. Corbus believes that there is no test superior to the Wassermann test, although, as in the case of every new discovery, imitations soon appear. The Wassermann test is positive for syphilis, but also gives a reaction in frambesia, yaws and even in scarlet fever. We now use an alcoholic extract, and one syphilitic liver will produce about a quart of antigen, and remain stable for two or three years. Dr. Corbus has also used the guinea-pig heart with fair success. In one case of supposed congenital syphilis of the eye the test was made with the heart antigen from the guinea-pig and with liver antigen. The former gave

a negative result, while the latter gave a positive result. It was concluded that the syphilitic anti-body was so fine that the heart antigen could not detect it, whereas the liver antigen, being more powerful, gave a positive reaction.

Dr. Casey A. Wood said that he spoke more particularly of the anti-syphilitic treatment of interstitial keratitis, and that he is very much in favor of the general anti-syphilitic treatment in the great majority of other syphilitic diseases of the eye. He asked Dr. Baum as to the value of intravenous injections of mercurials and whether the course pursued by Darier and others who used limited amounts of antitoxin is entirely safe. Darier believes that one-half the ordinary dosage of atoxyl given for a great length of time is safe, so far as the eye is concerned, and that all cases of disturbance have occurred with a larger dose.

Dr. Wilder said that his experience is in accord with the experience of others in regard to the graver prognostic import of syphilitic iritis, as compared with the simple forms of iritis, but that does not mean that many of the cases of syphilitic iritis do not recover fully.

As to the large doses of iodid of potassium, he believes in their efficacy, particularly when nervous structures are involved. There is no dosage of potassium iodid; it depends on circumstances. He has seen nuclear palsies of the eye disappear, but not until after he had reached heroic doses. One case of palsy of the external rectus did not yield to treatment until the patient was taking 600 grains of potassium iodid three times a day.

As to the quality of potassium iodid used, he wanted Dr. Baum to say whether certain makes of potassium iodid are better than others. He has been informed that Merk markets four grades of potassium iodid, running in value up to the highest purity. In sensitive persons there is always some gastric disturbance in spite of the fact that iodid is given with certain pepsin preparations, but since using the Merk iodid of highest purity, he has not noted this disturbance.

Dr. William L. Baum answered Dr. Wood's question by stating that small doses of atoxyl have not given better results than moderate doses of mercury. Intravenous injections of mercury were popular years ago, but are no longer considered good practice. The results are not strikingly better than from hypodermic medication, and the danger of clot formation, which he does not believe to be very great, might become so in the hands of those who are not skilled in the technic of the injection.

As regards the different grades of potassium iodid, he said that there has crept into use, for financial reasons, the employment of iodids which are not strictly pure, therefore, it was found necessary to market iodids of various grades. He advised the best grade always and some manufacturers make better iodids than others, but owing to the fact that the profession has been discouraged from specifying certain mixed preparations, he hesitated to speak about this point. He also advised giving pepsin preparations and called particular attention to the necessity of proper dilution, because saturated solution of potassium iodid produced congestion of mucous membranes. Therefore, large doses well diluted can be used with safety. That is also the reason for giving iodids after meals or when food is present in the stomach. In case of intestinal congestion, it is advisable to give lactopeptin instead of pepsin. One point we must not lose sight of is the fact that syphilis must be treated by mercury for a minimum period of three years, and for every year of the patient's life thereafter. He is convinced that the time will come that the Wassermann test or some modification of it may be employed by every physician, and we can then say when the time has arrived that the patient is no longer in need of anti-specific treatment. When the test is positive, treatment must again be instituted. That will also determine the amount and specific treatment necessary. There is another reason for lengthening the duration of treatment, and that is that every syphilitic has a tendency toward hardening of the vessels, and increasing the blood pressure. It is in these cases particularly that iodids are indicated, because they remove

from the vessels certain elements which decrease their elasticity, and to a certain extent lower the blood pressure. He is firmly convinced that we add to the expectation of life of the syphilitic at least a period of from five to ten years, by pursuing such a course, but he must receive some sort of treatment as long as he lives.

WILLIS O. NANCE, Secretary.

DE WITT COUNTY.

The DeWitt County Medical Society held its quarterly meeting in the County Court room, Clinton, October 28, there being about fifteen members present. The program was as follows: "The Management of Typhoid Fever," by Dr. T. W. Bath, Bloomington. Discussion opened by Dr. Myers. "The Delirium of Typhoid Fever," by Dr. S. A. Graham, Clinton. Discussion opened by Dr. Davis, Farmer City. "The Treatment of Typhoid Fever," by Dr. W. H. Kirby, Chestnut. Discussion opened by Dr. Sanderson, Waynesville. "The Hygiene of Typhoid Fever," by Dr. C. V. Carter, Clinton. Discussion opened by Dr. Chapin, Weldon. The talk by Dr. Bath was especially valuable, as he has had wide experience in the treatment of typhoid fever both in military and civil practice, having been a surgeon in the United States Army in Cuba and elsewhere.

LA SALLE COUNTY.

The LaSalle County Medical Society met in LaSalle October 26, 1909. The program was as follows: "Ulcer of the Cornea," by Dr. H. C. Hill, Streator. "Intestinal Surgery, with Report of a Case," Dr. T. W. Burrows, Ottawa. "Notes Taken in Mayo's Clinic on Diagnosis of Ulcer and Cancer of the Stomach," Dr. P. N. Burke, LaSalle. "Report of Two Interesting Cases," Dr. E. W. Weis, Ottawa.

MERCER COUNTY.

Mercer County Medical Society convened in regular session in the County Court room at Aledo at 1:30 p. m., Oct. 12, 1909. Dr. J. H. Moore presided. After transacting the regular business the chair appointed the following committee on program: Dr. B. R. Winbigler, Seaton; Dr. V. A. McClanahan, Viola, and Dr. J. W. Wallace, Aledo. There were many physicians present who took active part in discussing the following papers on the program: Dr. J. W. Wallace, of Aledo, very ably presented a paper on the "Technique of a Normal Obstetrical Case." Dr. Clyde A. Finley, of Galesburg, presented in an impressive manner "The Operation of Choice in Appendicitis." The last on the program was a paper by Dr. Frank Egge, North Henderson, on "Collodion Dressing as a Substitute for Stitches in Wounds." The venerable doctor, instead of using a manuscript, addressed more as a lecture, as he propounded to the society the result of many years of practice.

No further business, the meeting adjourned.

A. N. MACKEX, Secretary-Treasurer.

MORGAN COUNTY.

The Morgan County Medical Society, together with the Medical Club, of Jacksonville, gave a testimonial banquet at the Pacific Hotel, Jacksonville, October 15, as a tribute of their great regard for Dr. Frank Parsons Norbury, who has lately been appointed superintendent of the Kankakee State Hospital. The more intimate associates of Dr. Norbury throughout Illinois, Eastern Missouri and Iowa were invited for the occasion. After the menu had been disposed of, the

men who were chosen to offer testimonials of the high esteem in which the guest of honor is held by all who have had the good fortune to come in contact with him, had their opportunity. Of course, some attempts to be humorous had to be made, but when the testimony was all in and weighed, humor was on the light side of the balance. Those who spoke on the occasion and their sentiments were Roswell O. Post, D.D., invocation; Dr. Carl E. Black, master of toasts, Jacksonville; Dr. L. J. Harvey, Griggsville, "Neighbors;" Hon. Wm. C. Graves, Springfield, "It Is Better to Give Than to Receive;" Dr. James F. Percy, Galesburg, "An Appreciative Patient;" Dr. L. C. Taylor, Springfield, "Ideals of a Physician;" Dr. Albyn L. Adams, Jacksonville, for the Medical Club, "When Colleagues Part;" Dr. T. J. Pitner, Jacksonville, for the Medical Society, "Some Rewards of Service."

Dr. Norbury responded to the many sentiments of personal and professional regard given by his fellows in the simple sincere words that become a great man when he is almost too full of deep feeling to say anything at all. All who were fortunate enough to be present felt that the occasion was one of those in life that is worth while. All the men in the society and the club feel keenly the loss to their local profession entailed by Dr. Norbury's departure, yet we must content ourselves, because there is no loss here without great gain to the state and to humanity at large.

Letters and telegrams expressing testimonials and regrets were received by the committee, some of which were read at the banquet.

During the day, as an added courtesy to the out-of-town doctors, surgical and medical clinics and clinical reports were given at Passavant Hospital by Drs. Carl E. Black, A. L. Adams, D. W. Reid, J. W. Hairgrove and George Stacy.

Those present at the banquet were:

J. G. Franken.	P. C. Thompson.
B. S. Gailey.	A. T. Bartlett.
T. O. Hardesty.	H. C. Woltman.
Elmer L. Crouch.	Geo. E. Baxter.
Wm. Parker.	Geo. R. Bradley.
Frank P. Boyd.	J. A. Day.
T. A. Wakely.	D. R. Gillies.
Irving Newcomer.	B. B. Dunn.
O. A. McIntosh.	J. W. Hairgrove.
E. F. Leonard.	R. T. Hinton.
T. G. Charles.	T. B. Throckmorton.
H. C. Campbell.	Robert Hanna.
J. M. Elder.	F. H. Metcalf.
G. W. Ross.	J. A. McGam.
Stanley Castle.	C. M. Vertres.
D. W. Reid.	C. L. Patton.
Grace Dewey.	Josephine Milligan.
A. M. King.	W. H. Weirich.
F. A. Norris.	W. L. Treadway.
W. P. Duncan.	R. O. Post.
P. E. Hofmann.	Albyn L. Adams.
George Stacy.	C. U. Collins.
L. C. Taylor.	Carl E. Black.
Frank P. Norbury.	J. F. Percy.
L. J. Harvey.	T. J. Pitner.
Hon. Wm. C. Graves.	Edward Bowe.
Dr. Charles E. Cole.	S. S. Munson.

The members of the joint committee having the affair in charge were Drs. W. P. Duncan, chairman; A. L. Adams, C. E. Cole, Edward Bowe, P. E. Hoffmann and

GEORGE STACY, Secretary.

OGLE COUNTY.

The Ogle County Medical Society met in the Court House in Oregon, Wednesday, October 27, 1909. Among those present were the following: Drs. C. E. Powell and Beard, of Polo; Curtis Powell, of Forreston; Stahley, of Freeport; Murphy, LeSage and Law, of Dixon; Replogle and Krettsinger, of Leaf River; Burrigle, Sheets, Schneider and Aldrich, of Oregon; and Hanes, of Mount Morris.

STEPHENSON COUNTY.

The Autumnal meeting of the Stephenson County Medical Society was held at the court house in Freeport, Thursday, October 14. The President, Dr. A. E. Smith, being absent, Vice-President, Dr. B. E. Brockhausen, presided. Dr. N. R. Harlan being favorably reported on by the Board of Censors, was voted on and admitted to the Society. Application for membership was made by Dr. H. D. Wilson. The following answered to roll-call: Drs. Best, Chas. L. Rideout, Morrison, Burns, Rosenstein, Thompson, Snyder, E. H. Hutchins, Linda K. Phillips, Arnold, B. E. Brockhausen and Clark. The following interesting program elicited much interest and the discussions were good: "Acute Yellow Atrophy of the Liver," Dr. C. L. Best. "Observations of Medical Interest on an Eastern Trip," Dr. R. J. Burns. "Varicose Ulcers on the Legs," Dr. N. C. Phillips. "Intracranial Complications of Middle Ear Disease," Dr. W. J. Rideout.

J. SHELTON CLARK, Secretary.

TAZEWELL COUNTY.

The Tazewell County Medical Society met Tuesday, Oct. 5, 1909, at Delavan. The following program was given at 2 p. m. after dinner had been served, Dr. Muehlmann, the president, presiding: "Medical Organization, Past, Present and Future," Dr. J. L. Wiggins, president of the state society; "Treatment of Gastroenteritis in Children," Dr. T. W. Gillespie, of Peoria; "Pellagra," Dr. Geo. A. Zeller, superintendent of Peoria State Hospital.

F. G. GALE, Secretary-Treasurer.

VERMILION COUNTY.

The Vermilion County Medical Society met in the Danville city hall Monday evening, September 13. This was the first meeting since June, as is customary during the summer months. The program was devoted to a paper on "Emergency Surgery" by Dr. Cloyd, of Catlin, which was excellent, and it was followed by a general discussion by all the members present. No other papers were presented on account of absence of two members on the program. The following members were present: Drs. Cloyd, Taylor, Miller, Dale, Clements, Becker, S. W. Jones, Hatfield, McIntosh, Wilkinson, Glidden, Gleeson, Williamson, Dice and Crist, with Drs. Strout and Hooker as guests.

At the meeting of October 11 the following members were present: Drs. Russell, Crist, Miller, Wilkinson, Hatfield, Glidden, Leo Fairhall, Joseph Fairhall, Crnikshank, Cooley, Clark, Sims, T. P. French, Becker, Clements, Gleeson, Steely, R. A. Cloyd, F. N. Cloyd, Solomon Jones, Babcock, Fisher, Guy, and Dr. Bird as a guest. Dr. James B. Herriek of Chicago, gave the society a very interesting and instructive lecture on the general subject of "Typhoid Fever." The society gave him a rising vote of thanks for his services and invited him to give another good lecture at some future time. After the program was finished, Drs. Holton, Hooker and Odbert were unanimously voted in as members of the society. The meeting adjourned to the second Monday in November.

GEO. STEELY, Secretary.

WABASH COUNTY.

The Wabash County Medical Society met at Scheck's Hall, October 25, at 3 p. m., and meeting was called to order by President, Dr. C. E. Gilliat. There was a good attendance. Dr. E. H. Lisher read a paper on Typhoid Fever, which was discussed by several members. Dr. S. W. Schneck read a paper on Emergency Surgery and this elicited a general discussion. The following were elected officers: Dr. C. E. Gilliat, President; Dr. S. W. Schneck, Vice-President; Dr. J. B. Maxwell, Secretary; Dr. E. H. Lisher, Treasurer; Dr. W. H. Robinson, Censor.

J. B. MAXWELL, Secretary.

WHITESIDE COUNTY.

The Whiteside County Medical Society met in Sterling Oct. 13, 1909. The first paper was read by Dr. Frank Anthony, of Sterling, on "Mistakes in Diagnosis in Accidents." This paper was very interesting and instructive and brought out a discussion enjoyed by all present. Dr. Frank Fitzgerald, of Morrison, read a paper on "Bright's Disease." Though handled from a broad standpoint and very exhaustive in its presentation it seemed simple and left little room for comment and debate. Following the reading of these papers the society adjourned and together enjoyed an hour of social concourse during dinner. On reassembling a paper was read by Dr. C. A. Griswold, of Fulton, the Nestor of the medical profession in Whiteside county. This paper, "Mind and Body in Disease," was thoroughly enjoyed by all as it is seldom that a medical subject is presented in such a pleasing manner from a purely literary standpoint. The paper was so connected and interwoven that to present extracts from it would not do it justice. In conclusion he said: "My excuse for this paper is that though old truths are well remembered, it is often wise to introduce them anew, and to emphasize the fact that the medical profession is two-fold, dealing with both mind and body in disease."

A report of the committee on itinerant vendors to guarantee funds from the county society treasury to obtain evidence regarding and for the prosecution of itinerant vendors was concurred in.

Dr. McBride of Coleta and Dr. Aborn of Sterling were admitted to membership in the county society. The following were present: Drs. Patch and McBride of Coleta; Griswold and Durkee of Fulton; Wahl of Tampico; Gordon, Smith, Anthony, J. F. Keefer, J. R. Keefer, Maxwell, Parker, Broderick, Aborn, of Sterling; Fitzgerald, Nowlen, Sullivan, of Morrison; Allen, of Rock Falls.

Next meeting will be held in Morrison, Dec. 8, 1909.

E. P. SULLIVAN, Secretary.

WOODFORD COUNTY.

The Woodford County Medical Society met in regular session in the city council chamber of the City Hall in Minonk, Oct. 19, 1909. Dr. W. F. Morrison presided. The minutes of the last meeting were read and approved. The visiting physicians were Dr. Geo. W. Parker, of Peoria; Dr. Zeller, of Bartonville; Dr. Love, of Dana; Dr. Wilcox and Dr. Evans, of Minonk. Among the physicians of the society present were Drs. Washburn and Millard, of Minonk; Nichols, of El Paso; Briggs, of Roanoke; Gordon, of El Paso; Morris and Wilcox, Jr., of Minonk, and Seidl, of Benson, Ill. Dr. Geo. W. Parker read a paper on "Mucous Colitis" which was greatly appreciated and full of interest. It brought about a general discussion from almost every member present. Dr. Zeller gave a most interesting talk on pellagra, exhibiting photos of cases present in Bartonville Asylum directly under his observation. He urged every physician present to be on the lookout for it and assist him in his investigations of this little understood malady. It was followed by a general discussion by all present. A vote of thanks was extended to Drs. Parker and Zeller for their valuable papers and the members from Minonk for their cordial entertainment and to the City Council of Minonk for the use of the City Hall. The meeting then adjourned.

F. C. NICHOLS, Secretary.

NEWS OF THE STATE

PERSONAL.

Dr. Elva A. Wright, Lake Forest, has returned after a summer abroad.
Dr. John Shaw, Joliet, has sold his home and will locate in Montana.
Dr. Arthur C. McIntyre and family, Troy Grove, have returned from Europe.

Dr. G. S. Edmonson, Clinton, has been appointed district surgeon of the Illinois Central.

Dr. Alsephus T. Robertson, Ashmore, who has been seriously ill, is reported to be improving.

Dr. and Mrs. Arnold C. Klebs, Chicago, have taken a villa at Ouchy, on Lake Geneva, Switzerland.

Dr. Frank G. Crowell, Rochelle, is ill at the home of his brother in Pawpaw, with acute kidney disease.

Dr. Albert Purcell, Streator, has been appointed division surgeon of the Chicago, Ottawa & Peoria Railroad.

Dr. H. W. Merrill, Maywood, is suffering from the effects of a paralytic stroke and is unable to read or speak.

Dr. Clarence W. Chapin, Weldon, has succeeded Dr. Guy G. Dowdall as president of the Dewitt County Medical Society.

Dr. John C. Augustine, Batavia, was operated on in Chicago for the removal of enlarged glands of the neck November 1.

Dr. Marcus Whiting, Peoria, has returned from a 10,000-mile trip with his wife and daughter through Alaska and Mexico.

Dr. Frank Buckmaster, Effingham, has been made instructor in experimental surgery in Barnes Medical College, St. Louis.

Dr. G. G. Zoehrlaut, Chicago, was elected supreme editor of Phi Beta Pi, the medical fraternity, at the convention in New Orleans.

Dr. Joseph Zeisler, Chicago, reports, after a tour of Europe, that even Europeans look to America as the home of valuable medical discoveries.

Dr. H. E. Wagner, 2424 Armitage Avenue, Chicago, has returned from Europe, where he attended special courses of study on diseases of the stomach and intestines.

Dr. J. W. Bozarth, Mt. Pulaski, departed Saturday, November 7, for Omaha, Neb., where he will take a three months' post-graduate course at the Creighton Medical College.

Dr. J. Tidball, Grafton, Jersey County, has retired from practice and removed to San Diego, Cal. The Doctor will keep up his membership in the Illinois State Medical Society.

Dr. Ralph Edward Sheldon, associate in anatomy in the University of Chicago, has been appointed assistant professor of anatomy in charge of histology, embryology and neurology in the University of Pittsburg Medical School.

Dr. E. H. Butterfield, former medical director of the Ottawa Tent Colony, announces his connection as medical director with the Buffalo Rock Sanitarium of Ottawa, Ill., an institution for the treatment of pulmonary tuberculosis.

Dr. J. Huber, Pana, for many years a practitioner in that city, is critically ill with a heart lesion and will probably be compelled to give up practice. Dr. Huber recently gave a perpetual lease of a floor in his new building to the Oddfellows of Pana.

Dr. Edward Bowe has succeeded Dr. Frank P. Norbury as superintendent of Maplewood Sanatorium, Jacksonville, and Dr. Elmer L. Crouch, late first assistant physician at the Jacksonville State Hospital, has been appointed resident physician and superintendent of the sanatorium.

Sir Wilfred T. Grenfell, M.D., of Labrador, delivered an address on the subject, "Is Life Worth While?" before the Sunday Evening Club November 1. As the Sir Knight was married November 18 to a charming young society woman of Chicago, Miss Anna MacClanahan, we can guess the answer to his question.

The terrible calamity at the Cherry mine brought out stories of personal bravery and heroic self-sacrifice worthy of the best days of chivalry. Dr. L. B. Howe, the St. Paul Mining Company physician, by his initiative and dauntless bravery, is credited with saving at least twenty-five lives and only escaped by a miracle when the other members of the rescuing party perished in flames.

NEWS ITEMS.

—The net receipts of Chicago Tag Day, October 16, were \$40,167, which is to be divided among sixteen charities.

—Evanston Hospital has received an anonymous gift of \$25,000. With this addition the endowment fund amounts to \$86,000.

—The Jewish Consumptive Relief Society realized more than \$4,000 from its annual ball held at the First Regiment Armory, Chicago, October 31.

—The physicians of St. Charles have requested the editors of newspapers to refrain from mentioning their names in connection with operations, accidents or other cases.

—E. P. Standard, M.D., who has been practicing in Macomb as assistant surgeon at St. Francis Hospital, has taken up his residence in Canton, where he will limit his practice to general surgery.

—Dr. W. A. Hinkle has filed a suit for damages against the Peoria Railroad Company on account of injuries claimed to have been received last summer, due to the negligence of a motorman.

—The Kewanee Physicians' Club, at the annual meeting, November 4, elected Dr. Peter J. McDermott, president; Dr. H. Nelson Heflin, vice-president, and Dr. Gideon H. Hoffman, secretary-treasurer.

—Mrs. E. Harrison, a fortune-teller on Milwaukee Avenue, Chicago, charged by the State Board of Health with practicing medicine without a license, is said to have been found guilty and fined \$100 and costs.

—The physicians of Sterling and Rock Falls have decided to lease a building in Sterling for a hospital. Applications have already been received from public-spirited people for the privilege of furnishing rooms.

—The trustees of Lincoln State School and Colony have provided for the establishment of a department of clinical psychology in the State Institution for the Feeble-minded, to be under the care of Dr. Edmund B. Huey.

—*Entirely Out of Date.*—"Give me three grains of corn, mother; only three grains of corn," begged the child. "And get pallsagra? Nix," replied the parent. Herewith the tot regretted the advance of science. —*New York Sun.*

—An immense boulder placed in Grant Park on the Chicago lake front by order of officers of the Chicago Medical Society, Christmas, 1905, as a memorial to Dr. Samuel Guthrie, has been ordered evicted by the Appellate Court.

—At the eighty-ninth semi-annual meeting of the Fox River Valley Medical Society, held in Aurora, November 9, Dr. Edward H. Abbott, Elgin, was elected president; Dr. C. H. Evans, Aurora, vice-president, and Dr. Wm. H. Schwingel, Aurora, secretary-treasurer.

—Dr. Frank Parsons Norbury, who has been appointed superintendent of the Kankakee State Hospital, was given a banquet at Jacksonville, October 15, by the Morgan County Medical Society and the Jacksonville Medical Club. The banquet was served at the Pacific Hotel, and Dr. Carl E. Black acted as toastmaster.

—Dr. Haldane Cleminson was convicted by a Chicago jury, November 20, of wife murder by chloroform poisoning and his penalty was fixed at life imprisonment. The fact that murder by chloroform is so rare, together with sensational details in the evidence, caused great interest in the trial among the profession.

—The Council of the Chicago Medical Society protested against the new ordinance prohibiting vehicles from standing unattended for more than an hour on the downtown streets. Physicians want to leave their automobiles on the street during their office hours. Under the ordinance a chauffeur can sit in a machine at the curb indefinitely.

—The Lake County Tuberculosis Institute has just received \$2,150 from liberal contributors to be used in building a new bath-house. Work will begin at once. Several new cottages are under construction, also being gifts to the institute. Each new place made for patients is spoken for before construction is completed and there is rarely a vacancy.

—One of the Chicago papers had a wierd story to the effect that a blind student at a medical school there was acquiring an education by telepathy, that is, by reading the minds of other students as they read to themselves. Inquiry at the college, however, disclosed that the student has the work read to him and is able to follow the course in that way.

—Dr. Harriet A. Hook, former head physician at the Lincoln Asylum for Feeble-minded Children, was exonerated by the Appellate Court in Chicago last month for entering the home of Ben M. Giroux to investigate the condition of Frank M. Giroux, who had been burned by falling on a radiator in the asylum. It will be remembered that the Giroux case caused great excitement in the last political campaign and featured in the legislative investigation of the state institutions.

—At the annual meeting of the Southern Illinois Medical Society in East St. Louis, November 5, the following officers were elected: President, Dr. Oscar B. Ormsby, Murphysboro; vice-presidents, Drs. Edward W. Fiegenbaum, Edwardsville, and Andrew Hall, Mount Vernon; secretary, Dr. Charles W. Lillie, East St. Louis; assistant secretary, Dr. Alonzo B. Capel, Shawneetown; treasurer, Dr. H. E. Telford, Centralia.

—Edward R. Hibbard, Oak Park, formerly president of various medical institutes, who had previously been convicted of having used the mails to defraud and sentenced to two years in the house of correction and in whose case the United States Circuit Court of Appeals refused an order for a new trial, was taken before Judge Landis, October 26, and told that if he would plead guilty a fine would be imposed. He plead guilty, was fined \$1,500, and paid the fine.

—Dr. Charles F. Burkhardt, Effingham, was recently sued for \$5,000 for malpractice. According to the daily press, the case was one of the hardest fought before this term of court. It appears that W. L. Goodell was arrayed on the part of the plaintiff, while Dr. Burkhardt had fifteen professional brethren who testified that the best of treatment had been rendered. The cause of the deformity in the elbow is said to have been an injury to the musculo-spiral nerve. The jury on October 28 returned a verdict exonerating the defendant.

—In the trial of Mrs. Augusta E. Stetson, deposed leader of a Christian Scientist church in New York, by the officials in Boston, the evidence savors strongly of the rites of voodooism. It is stated that she gave one Archibald McClellan his deserts with the following incantation: "Archibald McClellan! Go to your place! If your place be in God, go there; if it be not in God, go to the other place. If that place be six feet under ground, go there! The law of truth to error is, thou shalt surely die and what thou doest do quickly." That would be a right smaht conjuh' in some sections of the country.

—The Physicians' Club of Chicago held the first meeting of the year November 19 at the Great Northern Hotel. The after-dinner program consisted of addresses on the general topic, "Medical Contract Practice as Viewed by Corporations." The following speakers participated: Dr. A. J. Bouffleur, chief surgeon to the C., M. & St. P. R. R. Co., "From the Standpoint of Surgeon to the Railroads"; Dr. James H. Burry, chief surgeon to the Illinois Steel Company, "From the Standpoint of Surgeon to the Steel Works"; Mr. George E. McCaughan, attorney for the Rock Island Railroad, "From the Standpoint of Attorney to the Railroad"; Dr. C. P. Caldwell, member of the Committee on Contract Practice of

the Chicago Medical Society, "The Two Sides of the Question." Discussion opened by Drs. John E. Owens, Harold N. Moyer and I. C. Gary. The corporation side of contract practice was ably presented at this meeting, and THE JOURNAL will present the argument in some detail in a later issue.

PUBLIC HEALTH.

—Out of the proceeds of the annual volkfest of the Schwaben-Verein \$1,150 has been donated to the various hospitals of the city.

—The McAlister Hospital at Waukegan has been so overcrowded that the board has decided to build an addition in the spring.

—The typhoid death rate in Chicago this year promises to be the lowest in the history of the city, and it will rank with the best American cities.

—The need of a hospital at St. Charles was demonstrated last month by the large number of patients from St. Charles in hospitals at Elgin, Geneva and Aurora.

—To prevent scarlet fever extending from Rockdale to Joliet, Health Commissioner H. G. Schuessler, of Joliet, had all interurban cars fumigated after every trip during a recent epidemic.

—In the contest over the smoke nuisance in Chicago, an ally to the smokers has appeared in the person of Col. W. P. Rend, who claims that the opponents of smoke are playing into the hands of the Commonwealth Edison Company, who publicly announce they are ready and willing to supply electric power to at least two railroads.

—The Illinois Branch of the American National Red Cross closed their fiscal year October 31. The report of the treasurer shows that \$95,192.72 had been received from the public and used in the charitable work of the organization, and that the total administrative expenses were \$126.78.

—The State Board of Health announces that it will furnish diphtheria antitoxin of the highest quality without charge in cases of necessity, the only requirement being that the physician who obtains the antitoxin will give a receipt for it and will furnish the State Board of Health with a clinical report of the patient to whom the antitoxin was administered. The state distribution was made possible by the appropriation passed by the last general assembly.

—The following physicians were named by the mayor of Chicago to attend the Conference on the Prevention of Infant Mortality, to be held at Yale University, November 11 and 12, under the auspices of the American Academy of Medicine: Drs. Wm. A. Evans, Isaac A. Abt, Thomas A. Woodruff, Casey A. Wood, Frank X. Walls, Frank S. Churchill, Caroline Hedger, Joseph Damiani, George C. Hunt, Joseph P. Cobb, Stephen R. Pietrowicz, and Prof. Charles R. Henderson.

—Under an arrangement between the Memorial Institute and the Chicago retail druggists, with some assistance from the department of health, effective since November 15, the retail price of diphtheria anti-

toxin has been reduced an average of 75 per cent. from former prices, and it will be on sale by all druggists. An amount containing 1,000 units now retails for 60 cents; 3,000 units, \$1.10; 5,000 units, \$1.50. The former prices were \$2, \$5 and \$7.50, respectively. The department asks all persons able to pay these very reasonable prices to leave the free state supply for the destitute who will need all of it.

—Twenty-eight state legislatures out of 43 in session during the past year passed 64 laws relating to the prevention or treatment of human tuberculosis and appropriated \$4,000,000 to advance the crusade. New state sanatoria will be built in Pennsylvania, Arkansas, Oregon, South Dakota, North Dakota and Florida. Connecticut will have three. Six other states will enlarge their sanatoria. There are now 27 states where such institutions have been established. Every state east of the Mississippi, except Illinois, West Virginia, Kentucky, Tennessee, South Carolina and Mississippi, have provided hospitals for tuberculous patients. Twelve states now have laws providing for the strict reporting and registration of tuberculosis cases.

—The Illinois Occupational Disease Commission appointed expert investigators and compilers, but found that the appropriation of \$15,000 could not be used for salaries. "We could save hundreds of lives right here in the State of Illinois simply by the information we could get together and make public in the next two years if we could use to the best advantage this money which has already been appropriated," said Professor C. R. Henderson, secretary of the commission. "It is tantalizing. Out of funds provided by the University of Chicago I have had a thoroughly trained expert assistant at work for a long time, and there is a great mass of data already gathered. The state can have the advantage of all this earlier work, but it is in such shape now that it is of no use. It needs to be arranged and classified. I cannot do it with my fingers, and a stenographer is useless. We must have expert assistance in this work if it is to proceed."

—A study of the results obtained by the Chicago Tuberculosis School, maintained jointly by the Tuberculosis Institute and the Board of Education in August with a class of thirty children from the stockyards district, has induced the trustees of the Elizabeth McCormick memorial fund to make a grant of \$2,500 to the United Charities for an open-air school to be run throughout the year. Experience has shown that the regular public school course contributes to the physical deterioration of these children owing to poor ventilation, rigid posture at desks, lack of rest, proper exercise and other factors. The school will be conducted on the roof of the Mary Crane nursery in a tent constructed of asbestos board. The hours of rest will be spent by the children in the open air on the roof, bundled up in blankets and Eskimo suits. The Board of Education will provide a teacher and desks. The medical staff represents the health department, through Dr. Evans, and the Tuberculosis Institute. The thirty children attending the trial school in August gained an average of 3.8 pounds during the month. One month after their return to their

homes, ten had lost in weight, three had remained stationary, and seventeen had continued to gain. Seventeen were first-stage cases of pulmonary tuberculosis, two had tubercular glands, and eleven were pronounced pretubercular. Sixteen had been and ten were still directly exposed to tuberculosis in their homes.

CHANGE OF LOCATION.

Dr. H. H. Rogers has moved from Cuba to Canton.

Dr. B. H. Webb has moved from Ewing to West Frankfort.

Dr. F. O. Pershing has removed from Dallas City to Crescent City.

Dr. A. C. Sheppard has removed from Glen Carbon, Ill., to Bostwick, Neb.

Dr. George R. Proctor has removed from Coleta to Grand View, Idaho.

Dr. E. W. Mueller has removed from 3359 to 3401 Southport Avenue, Chicago.

Dr. Wilbur M. French has removed to 3401 West Harrison Street, Chicago.

Dr. F. H. Powers has removed from 4012 Sheridan Road, Chicago, to Vineland, N. J.

Dr. Charles B. Fry, of Mattoon, expects soon to retire from the practice of medicine.

Dr. C. E. Harris has removed from 628 to 331 East Forty-seventh Street, Chicago.

Dr. W. B. Williams has moved from Cissna Park to 949 Greenwood Terrace, Chicago.

Dr. W. J. Webb has removed from 1609 Roscoe Street to 4053 North Avers Avenue, Chicago.

Dr. M. W. Thompson has removed from 1201 Grand Avenue to 1432 North Robey Street, Chicago.

Dr. John Binkley has removed from "Rest Haven," Waukesha, Wis., to 4328 Lake Avenue, Chicago.

Dr. Glen Wood has removed from 134 Monroe Street, Chicago, to 1560 Race Street, Denver, Colo.

Dr. T. Anthony Kreuser has removed from 1934 Lincoln Avenue to 2152 Montrose Avenue, Chicago.

Dr. L. J. Hughes has removed from 133 State Street, Chicago, to 806 Columbus Avenue, Fort Wayne, Ind.

Dr. Esther A. Ryerson, formerly of Belle Hospital, has removed to 726 West Church Street, Champaign.

Dr. Ella V. Timmerman has removed from 78 State Street, Chicago, to Manhein Cottage, Little Falls, N. Y.

Dr. Rosalie M. Ladova has removed from 4304 Grand Boulevard, Chicago, to 46 Reed Street, Ashville, N. C.

Dr. P. J. Gillen, of East St. Louis, has purchased the property and practice of Dr. G. G. Dowdall in Clinton, Ill.

Dr. William Wenzlick has removed from 1206 Lawrence Avenue, Chicago, to 1101 Orange Street, Redlands, Cal.

Dr. Hugh K. Schussler has removed from 4119 Kenmore Avenue, Chicago, to 415 West Fifty-seventh Street, New York City.

Dr. G. G. Dowdall, of Clinton, has removed to 6200 Monroe Avenue, Chicago, where he has taken an assistantship under Dr. J. B. Murphy.

Dr. John Z. Powell, of Logansport, Ind., has removed to Springfield and entered into business with his son as a partner in the Springfield Dairy Company.

MARRIAGES.

ROBERT E. STEVENS, M.D., to Miss Mabel Healey, both of Rochelle, October 20.

EMIL H. HERMANN, M.D., Highland, to Miss Bertha Hermann, of Fillmore, October 31.

WALTER WILSON HOUSE, M.D., Thompsonville, to Miss Nona Steele, of DeSoto, October 24.

HARRY DEWITT FAST, M.D., to Miss Luella Adaline Miller, both of Mackinaw, October 27.

RALPH VERNON MOORE, M.D., Amboy, and Miss Catherine Sheridan, of Freeport, November 3.

D. W. MILLIGAN, M.D., of Springfield, and Miss Kathryn Becker, of Springfield, Nov. 17, 1909.

LOYD E. GOODPASTURE, M.D., Thayer, to Miss Frances Ann Carter, of Chesterfield, October 14.

AARON P. WOLOVER, M.D., Willisville, to Miss Portia Catlett, at Springfield, September 21.

ROBERT IRVING BULLARD, M.D., and Miss Ellen Merriman, both of Springfield, November 4, at Springfield.

ERNEST GROGG MOTLEY, M.D., Virden, and Miss Sromon Augusta Bartlett, of Carlinville, Wednesday evening, October 27, at Carlinville.

GEORGE J. GOODIN, M.D., of New Hartford, to Miss Nancy Leona Haskins, of Pittsfield, Nov. 17, 1909. Dr. Goodin has located in Bellevue, Ill.

DEATHS.

CHARLES C. THOMPSON, M.D., of Taylorville, died in October, 1909.

L. JOSEPH STRUZYNSKI, M.D. University of Dorpat, Russia, 1850; died at his home in Joliet, November 5, from senile debility, aged 86.

ROBERT GIBSON, M.D., Missouri Medical College, St. Louis, 1855; for forty years a practitioner and medical missionary of Alton; died at his home in Siloam Springs, Ark., October 21, from cerebral hemorrhage, aged 71.

DARIUS F. BOUGHTON, M.D. University of Michigan, 1870; of Chicago, from 1872 to 1881; a member of the staff of the State Hospital for the Insane, Mendota, Wis.; died in Wilmette, July 30, from carcinoma of the rectum, aged 65.

FRANKLIN B. IVES, M.D. Rush Medical College, Chicago, 1850; a practitioner and clergyman of Bureau County for many years, and later a resident of California; died at his home in Long Beach, Cal., November 1, from senile debility, aged 86.

GEORGE C. WAISS, M.D. Rush Medical College, Chicago, 1894; a member of the American Medical Association; consulting gynecologist to the Hospital of St. Anthony of Padua; died at his home in Chicago, November 11, from appendicitis, aged 42.

THOMAS J. BOYKIN, M.D. University of Pennsylvania, Philadelphia, 1852; a surgeon in the confederate service during the Civil War; for many years a resident and wholesale druggist of Baltimore; died at the home of his daughter in Chicago, October 22, from senile debility, aged 82.

JOHN ALBERT JONES, of Springfield, aged 62 years; graduate of the University Hospital Medical College of New Orleans, where his uncle, Dr. Joe Jones, was a well-known practitioner for many years. Dr. Jones practiced in Springfield and other points, but had retired for a number of years prior to his death.

WILLIAM E. SCOBEX, M.D. Medical College of Ohio, Cincinnati, 1886; contract surgeon in the army and afterward captain and assistant surgeon and assigned to duty with the Forty-fifth Kentucky Volunteer Infantry during the Civil War; died at his home in Kankakee, October 24, from nervous breakdown, aged 68.

H. G. WHEELER, M.D., of Breckenridge, Nov. 21, 1909, of a complication of diseases, aged 67 years. Deceased was born April 14, 1842, in Gibson County, Indiana. He served with distinction in the Civil War as first lieutenant of Company I, Forty-eighth Illinois Volunteer Infantry. He was a practicing physician of Springfield for a number of years and was a Mason.

J. J. CONNER, M.D., died November 10 at his home in Pana, aged 60 years, after an illness of three weeks with heart trouble. Dr. Conner was prominent in political circles, being a politician of the Republican ranks and widely known over the state. He was affiliated with the Illinois State Medical Society and held an office in that society at one time. He had been a resident of Pana for the past twenty years. He was also a Mason and a Woodman, which organizations conducted the funeral.

FRANK CHARLES BOURSCHIEDT, M.D. Rush Medical College, Chicago, 1887; one of the founders of the Illinois State Pharmaceutical Association in 1881, and its first president; from 1881 to 1890 a member of the Committee on Revision of the United States Pharmacopeia; for one year president and for two years secretary of the Peoria Medical Society; gynecologist to St. Francis Hospital; and at one time commissioner of health of the city; died at his home, October 16, from carcinoma of the stomach, aged 58.

HENRY A. EIDSON, M.D. Rush Medical College, 1880; died at his home in Willow Hill, from pulmonary hemorrhage, Oct. 7, 1909, aged 62 years. Dr. Eidson has held the following positions in Masonry: Past Master, Cooper Lodge, No. 489, A. F. and A. M.; Grand Lecturer and District Deputy Grand Master of the Fortieth District; Past Grand Master of Willow Hill Lodge, No. 884, I. O. O. F.; member of Olney Commandery, Knights Templars; late president of Jasper County Medical Society. He was born in Mexico, Ind., in 1846.

MARCUS PATTEN HATFIELD, M.D. Chicago Medical College, 1872; for many years a member of the American Medical Association; professor of diseases of children in Chicago Medical College from 1875 to 1896; since 1898 professor of pediatrics in the Chicago Clinical School; clinical professor of pediatrics in the medical department of the University of Illinois; president of the medical board of La Rabida, the Jackson Park Fresh Air Sanitarium; author of several works on the diseases of children and hygiene and editor of the Chicago *Clinic*; died at his home, November 11, from tuberculosis, aged 60.

Book Notice.

SURGICAL DIAGNOSIS. Second revised edition. By Daniel N. Eisendrath, M.D., Professor of Surgery in the Medical Department of the University of Illinois (College of Physicians and Surgeons). Octavo of 885 pages, with 574 original illustrations, 25 in colors. W. B. Saunders Company, Philadelphia and London, 1909. Cloth, \$6.50 net; half morocco, \$8.00 net.

The fact that a second edition has been called for within two years is an assurance to the author that a book upon surgical diagnosis has a field of usefulness which has not been exhausted. The text of the previous edition has been thoroughly reviewed and much new subject-matter added. Every effort has been made to include the newer methods of diagnosis and to amplify those which were taken up previously, especially the chapters on cystoscopy and ureteral catheterization. Many sections have been entirely rewritten. More recent investigations have shown that former views in regard to localization of the motor centers in the cortex of the brain were erroneous, and this portion of the chapter on the head was changed to conform with these later views.

The section upon diagnosis of renal lesions has been entirely rewritten in order to keep pace with the rapid advances in this field. Many original illustrations have been added in order to show the importance of training the eye as well as the sense of touch. The kind reception which the book has received at the hands of the press and profession might well encourage the author in hoping that the present edition will be equally well thought of.

NOTICE.

My name having been used without my authorization in a pamphlet advertising an unethical preparation, I take this means of informing the medical profession that no more such pamphlets with my name will be issued. (Signed) J. H. CAMPBELL, M.D., Danville, Ill.

Nov. 17, 1909.

ILLINOIS STATE MEDICAL SOCIETY

SECTION OFFICERS AND COMMITTEES.

SECTION ONE.

W. H. Gilmore, Chairman.....Mt. Vernon
Frederick Tice, Secretary.....Chicago

SECTION TWO.

S. C. Stremmel, Chairman.....Macomb
Dean D. Lewis, Secretary.....Chicago

SECRETARY'S CONFERENCE.

C. H. Lovewell, President.....Chicago
M. K. Bowles, Vice-President.....Joliet
D. G. Smith, Secretary.....Elizabeth

MEDICO-LEGAL COMMITTEE.

Harold N. Moyer, Chairman, Chicago.

COMMITTEE ON MEDICAL LEGISLATION.

C. J. Whalen, Chicago.
M. S. Marcy, Peoria.
L. C. Taylor, Springfield.
The President and Secretary, ex-officio.

COMMITTEE ON PUBLIC POLICY.

Robert B. Preble, Chicago.
Carl E. Black, Jacksonville.
Wm. L. Baum, Chicago.
The President and Secretary, ex-officio.

COMMITTEE ON MEDICAL EDUCATION.

E. W. Ryerson, Chicago.
F. P. Norbury, Jacksonville.
J. F. Percy, Galesburg.

COUNTY SOCIETIES.

This list is corrected in accordance with the best information obtainable at the date of going to press. County Secretaries are requested to notify THE JOURNAL of any changes or errors.

Adams County.

Henry Hart, Pres.....Quincy
Clarence A. Wells, Secy.....Quincy
Alexander County.

Samuel B. Cary, Pres.....Calro
J. T. Walsh, Secy.....Calro

Bond County.

John W. Warren, Pres.....Greenville
K. B. Luzader, Secy.....Greenville

Boone County.

A. J. Markely, Pres.....Belvidere
C. R. Scott, Secy.....Belvidere
Brown County.

D. W. Owens, Pres.....Hersman
Wm. Parker, Secy.....Mt. Sterling
Bureau County.

J. F. Taylor, Pres.....Buda
O. J. Flint, Secy.....Princeton
Calhoun County.

I. S. Berry, Pres.....Batchtown
Stephen Platt, Secy.....Hardin
Carroll County.

J. E. Porter, Pres.....Shannon
H. S. Metcalf, Secy.....Mt. Carroll
Cass County.

R. H. Garm, Pres.....Beardstown
J. A. McGee, Secy.....Virginia
Champaign County.

W. E. Schowengerdt, Pres.....Champaign
N. M. Baker, Secy.....Champaign
Clark County.

E. M. Duncan, Pres.....Marshall
L. A. Burnside, Secy.....West Union
Clay County.

John Shore, Pres.....Sailor Springs
J. W. Walton, Secy.....Clay City
Christian County.

J. H. Dickerson, Pres.....Taylorville
D. Barr, Secy.....Taylorville
Clinton County.

B. J. Melrinke, Pres.....Germantown
J. C. Klutho, Secy.....Breese
Coles County.

Cleaves Bennett, Pres.....Mattoon
R. H. Craig, Secy.....Charleston
Cook County.

John A. Robison, Pres.....Chicago
George F. Suher, Secy.....Chicago
Crawford County.

N. F. Lindsay, Pres.....Robinson
A. L. Lowe, Secy.....Robinson
Cumberland County.

R. L. Kurtz, Pres.....Neoga
Will L. Smith, Secy.....Toledo
DeKalb County.

A. M. Hill, Pres.....Genoa
C. H. Mordoff, Secy.....Genoa
De Witt County.

G. G. Dowdall, Pres.....Clinton
Charles W. Carter, Secy..N.....Clinton

Douglas County.

I. W. Hall, Pres.....Comargo
Walter C. Blaine, Secy.....Tuscola

Du Page County.

(Affiliated with Cook County.)

Edgar County.

Bertha L. Clinton, Pres.....Paris
F. G. Cretors, Secy.....Paris

Edwards County.

W. E. Buxton, Pres.....Samsville
J. L. McCormick, Secy.....Bone Gap
Effingham County.

C. F. Burkhardt, Pres.....Effingham
F. W. Goodell, Secy.....Effingham
Fayette County.

L. L. Morey, Pres.....Vandalla
A. L. T. Williams, Secy.....Vandalla
Franklin County.

C. M. Thornton, Pres.....Osage
W. H. Alvis, Secy.....Benton
Fulton County.

F. B. Robb, Pres.....Farmington
D. S. Ray, Secy-Treas.....Cuba
Gallatin County.

Paul Sherman, Pres.....Shawneetown
A. B. Capel, Secy.....Shawneetown
Greene County.

H. W. Chapman, Pres.....Whitehall
H. A. Chapin, Secy.....Whitehall

Grundy County.

F. A. Palmer, Pres.....Morris
H. M. Ferguson, Secy.....Morris

Hamilton County.

I. W. Asbury, Pres.....McLeansboro
C. M. Lyon, Secy.....McLeansboro

Hancock County.

G. E. Pumphrey, Pres.....Ferris
C. L. Ferris, Secy.....Carthage

Hardin County.

F. M. Fowler, Pres.....Elizabethtown
R. H. Willingham, Secy.....Elizabethtown

Henderson County.

C. E. Kaufman, Pres.....Oquawka
Ralph Graham, Secy.....Biggsville

Henry County.

W. H. Hohmann,, Pres.....Kewanee
C. W. Hall, Secy.....Kewanee

Iroquois-Ford District.

J. Y. Shamei, Pres.....Gibson City
Horace Gibson, Secy.....Sheldon

Jackson County.

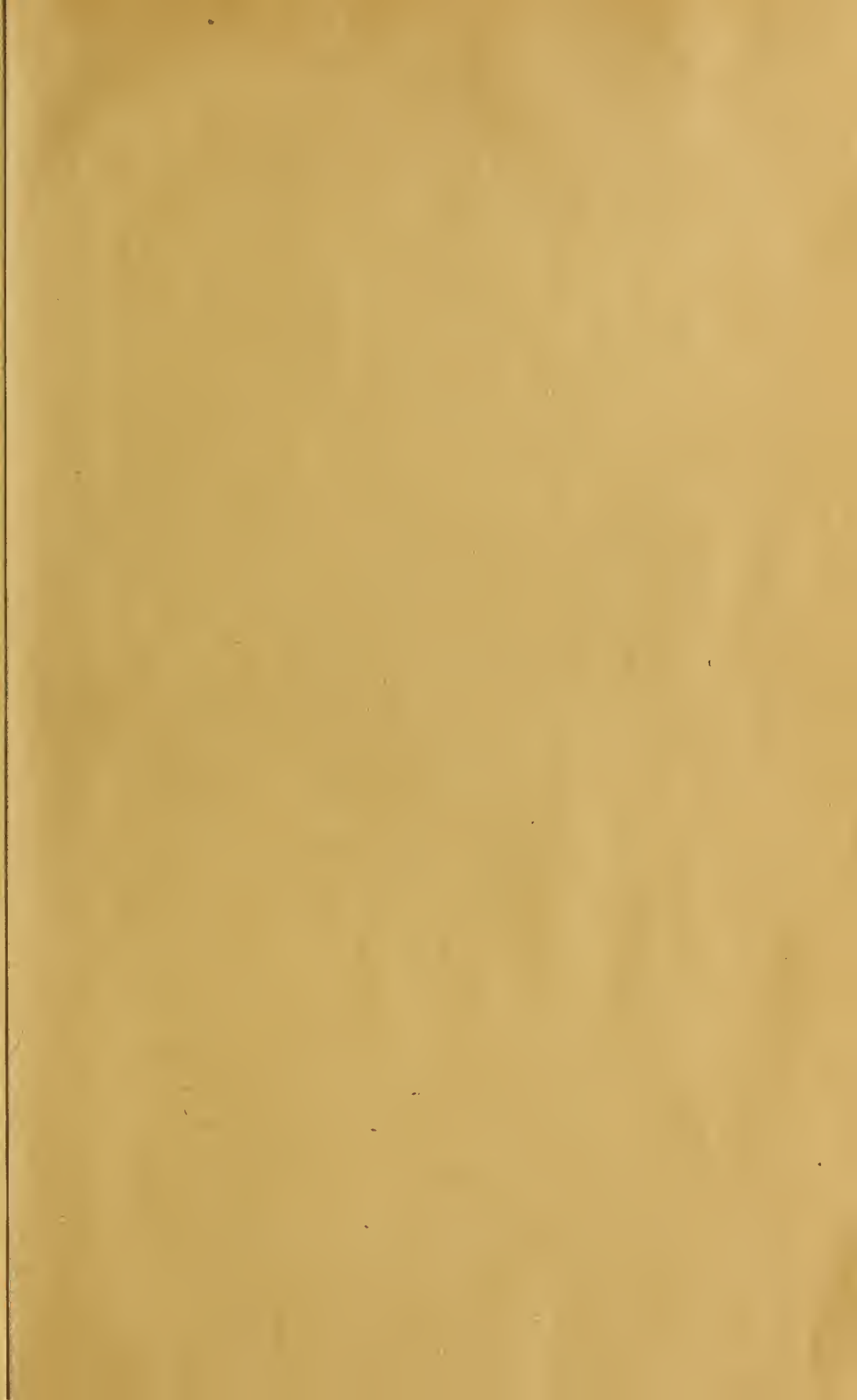
C. O. Molz, Pres.....Murphysboro
Ray B. Essick, Sec-Treas.....Murphysboro

Jasper County.

Dr. H. A. Eldson.....Newton
James P. Prestley, Secy.....Newton

Jefferson County.
 John T. Whitlock, Pres.....Mt. Vernon
 Wilbur N. Gilmore, Secy.....Mt. Vernon
 Jersey County.
 A. K. Van Horn, Pres.....Jerseyville
 A. S. Hunt, Secy.....Jerseyville
 Jo Davless County.
 S. G. Kreider, Pres.....Lena
 D. G. Smith, Secy.....Elizabeth
 Johnson County.
 H. D. Larue, Pres.....New Burnside
 W. R. Mangum, Secy.....Buncombe
 Kane-McHenry District.
 Fox River Valley Medical Society.
 H. S. Hardy, Pres.....Kanesville
 Geo. F. Allen, Secy.....Aurora
 Kankakee County.
 Herbert Wheeler, Pres.....Grant Park
 A. S. Kenega, Secy.....Kankakee
 Kendall County.
 J. B. Kinnie, Pres.....Newark
 R. A. McClelland, Secy.....Yorkville
 Knox County.
 J. E. Cowan, Pres.....Galesburg
 D. J. Evans, Secy.....Galesburg
 Lake County.
 J. L. Taylor, Pres.....Libertyville
 W. H. Watterson, Secy.....Waukegan
 La Salle County.
 Wm. Schoenneshoefer, Pres.....Lostant
 A. J. Roberts, Secy.....Ottawa
 Lawrence County.
 J. R. Thompson, Pres.....Bridgeport
 C. M. Lewis, Secy.....Bridgeport
 Lee County.
 E. S. Murphy, Pres.....Dixon
 C. A. E. LeSage, Secy.....Dixon
 Livingston County.
 C. H. Barr, Pres.....Dwight
 John Ross, Secy.....Pontiac
 Logan County.
 L. M. Perry, Pres.....Broadwell
 H. S. Oyler, Secy.....Lincoln
 McDonough County.
 A. R. Adams, Pres.....Macomb
 E. T. Jarvis, Secy.....Macomb
 McHenry County.
 (See Kane-McHenry District.)
 McLean County.
 E. Mammen, Pres.....Bloomington
 A. R. Freeman, Secy.....Bloomington
 Macon County.
 John T. Miller, Pres.....Decatur
 Clarence E. McClelland, Secy.....Decatur
 Macoupin County.
 E. K. Lockwood, Pres.....Virden
 H. A. Pattison, Secy.....Benld
 Madison County.
 S. T. Robinson, Pres.....Edwardsville
 E. W. Flegenbaum, Secy.....Edwardsville
 Marlon County.
 W. B. Wilson, Pres.....Centralla
 W. W. Murfin, Secy.....Patoka
 Marshall-Putnam County.
 G. A. McCormick, Pres.....Hennepin
 M. C. Weeks, Secy.....Granville
 Mason County.
 H. O. Rogier, Pres.....Mason City
 A. G. Servass, Secy.....Havana
 Massac County.
 J. A. Orr, Pres.....Metropolis
 A. C. Ragsdale, Secy.....Metropolis
 Menard County.
 Herman Rothert, Pres.....Petersburg
 Irving Newcomer, Secy.....Petersburg
 Mercer County.
 G. H. Moore, Pres.....Aledo
 A. N. Mackey, Secy.....Monroe
 Monroe County.
 H. Heldelberg, Pres.....Hecker
 L. Adelsberger, Secy.....Waterloo
 Montgomery County.
 P. M. Kelly, Pres.....Litchfield
 H. F. Bennett, Secy.....Litchfield
 Morgan County.
 Charles E. Cole, Pres.....Jacksonville
 Geo. Stacy, Secy.....Jacksonville
 Moultrie County.
 W. E. Stedman, Pres.....Sullivan
 W. P. Davidson, Secy.....Sullivan
 Ogle County.
 J. M. Beveridge, Pres.....Oregon
 J. T. Kretsinger, Secy.....Leaf River

Peoria City Medical Society.
 C. U. Collins, Pres.....Peoria
 J. H. Bacon, Secy.....Peoria
 Perry County.
 C. S. Cleland, Pres.....Swanwick
 C. H. Roe, Secy.....Pinkneyville
 Piatt County.
 W. G. McPherson, Pres.....Bement
 C. M. Bumstead, Secy.....Monticello
 Pike County.
 J. E. Miller, Pres.....Pittsfield
 H. T. Duffield, Secy.....Barry
 Pope County.
 Jas. Dixon, Pres.....Hartsville
 W. A. Sims, Secy.....Golconda
 Pulaski County.
 Hall Whiteaker, Pres.....Mound City
 M. L. Winsted, Secy.....Wetang
 Randolph County.
 H. L. Gault, Pres.....Sparta
 A. D. Steele, Secy.....Chester
 Richland County.
 W. E. Fritchell, Pres.....Olney
 Frank J. Weber, Secy.....Olney
 Rock Island County.
 W. H. Ludewig, Pres.....Rock Island
 W. D. Snively, Secy.....Rock Island
 St. Clair County.
 W. E. Wiatt, Pres.....East St. Louis
 E. H. Lane, Secy.....French Village
 Saline County.
 J. W. Mitchell, Pres.....Harrisburg
 J. R. Baker, Secy.....Harrisburg
 Sangamon County.
 Walter Ryan, Pres.....Springfield
 G. T. Palmer, Secy.....Springfield
 Schuyler County.
 A. W. Ball, Pres.....Rushville
 W. F. Harvey, Secy.....Rushville
 Scott County.
 J. W. Wels, Pres.....Manchester
 J. P. Campbell, Secy.....Winchester
 Shelby County.
 H. E. Monroe, Pres.....Shelbyville
 Frank P. Auld, Secy.....Shelbyville
 Stark County.
 J. R. Holgate, Pres.....Wyoming
 R. L. Bufum, Secy.....Toulon
 Stephenson County.
 A. E. Smith, Pres.....Freeport
 J. Sheldon Clark, Secy.....Freeport
 Tazewell County.
 C. G. Muehlmann, Pres.....Pekin
 F. C. Gale, Secy.....Pekin
 Union County.
 W. E. Lingle, Pres.....Cobden
 E. V. Hale, Secy-Treas.....Anna
 Vermillion County.
 S. C. Glidden, Pres.....Danville
 Geo. Stealy, Secy.....Danville
 Wabash County.
 C. E. Gilllatt, Pres.....Allendale
 W. E. Mercer, Secy.....Mt. Carmel
 Warren County.
 W. H. Wells, Pres.....Monmouth
 Chauncey Sherrick, Secy.....Monmouth
 Washington County.
 D. S. Neer, Pres.....Beaucoup
 S. P. Schroeder, Secy.....Nashville
 Wayne County.
 W. M. Johnson, Pres.....Johnsonville
 J. P. Walters, Secy.....Fairfield
 Whiteside County.
 Frank Fitzgerald, Pres.....Morrison
 E. P. Sullivan, Secy.....Morrison
 White County.
 M. J. Hopkins, Pres.....Burnt Prairie
 F. C. Sibley, Secy.....Carmel
 Will County.
 R. B. Leach, Pres.....Joliet
 Marion K. Bowles, Secy-Treas.....Joliet
 Williamson County.
 J. W. Vicks, Pres.....Cartersville
 W. H. Perry, Secy.....Cartersville
 Winnebago County.
 F. H. Kimball, Pres.....Rockford
 Frank W. Hanford, Secy.....Rockford
 Woodford County.
 F. H. Henderson, Pres.....El Paso
 F. C. Nichols, Secy.....El Paso



41A 211+

